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**17 September 1985**

**Worldwide Report**

**TELECOMMUNICATIONS POLICY,  
RESEARCH, AND DEVELOPMENT**

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17 September 1985

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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AUSTRALIA

BRIEFS

UNIONS BAN WORK ON SATELLITE--The Australian Broadcasting Corporation [ABC] has lodged an application with the Arbitration Commission for permission to stand down staff refusing to work its new AUSSAT satellite. Radio Australia is the overseas service of the ABC. The corporation's spokesman says the application follows bans by the ABC Staff Union to support increased funding for the corporation. The union says it will not work on the satellite until an extra \$20 million [Australian dollars] is provided for the ABC by the Federal Government. The Arbitration Commission yesterday ordered the union to lift their work bans, saying the bans were politically-oriented and should be taken up through political processes. However, a meeting of unions in the communications industry today in Melbourne agreed not to take any action which would negate the bans. The meeting agreed to arrange a deputation from the Australian Council of Trade Unions and the ABC Staff Union to meet with federal ministers to discuss the funding issue. The satellite is due to be launched from the space shuttle "Discovery" during its next mission, which is scheduled to begin tomorrow. [Text] [Melbourne Overseas Service in English 1230 GMT 23 Aug 85 BK]

CS0: 5500/4349

HONG KONG

# TELCO TO PUT INTEGRATED SERVICES NETWORK ON TRIAL

Hong Kong SOUTH CHINA MORNING POST in English 13 Aug 85 Supplement p 3

[Article by Peter Robinson]

[Text]

Hongkong Telephone Co Ltd (Telco) will begin in October a technical trial of a new circuit switching network — integrated services digital network — which allows subscriber terminals to transmit and receive voice, data, text and images.

This universal circuit switching network will minimise the workload of the individual specialised networks now providing some of these services.

Telco's corporate marketing manager, Mr John York-Williams, told a lunch meeting hosted by the Rotary Club of Hongkong South that his company would be "starting a technical trial of ISDN in October, installing equipment provided by Fujitsu".

He said the introduction of ISDN is being implemented through digital switching equipment which was first introduced here in 1982. The equipment will be installed in every exchange in the territory by 1988, he added.

Mr York-Williams said after demonstrating some of the system's functions to major customers, Telco would be looking to obtain their reaction to the system.

He said the network was originally envisaged as a business service rather than a service for general telephone users. Charges for the service have not been considered yet.

Telco plans that by the end of 1987, digital switching capacity will accommodate 751,000 lines or 32 per cent of total ISDN capacity.

Hongkong has the largest working optical fibre network for the transmission of digital information of any city in the world.

Some of Telco's newer services, taking advantage of recent leaps in communications technology, are claimed to have met with strong demand.

Mr York-Williams said that last year there was 100 per cent growth in demand for Telco's facsimile service, Faxline, and it now has 3,000 subscribers with similar growth expected to continue.

Telco is now developing a colour facsimile service, he added.

In October Telco plans to publish, with Cable and Wireless (Hongkong), the first Hongkong telefax directory containing the listings of all registered fax subscribers in the territory.

Mr York-Williams noted that facsimile is particularly useful for the transmission of languages like Chinese and Japanese that do not depend on alpha numerics.

Mobile cellular radio sales have trebled since their price reduction a month ago, according to Mr York-Williams.

Telco opposed the granting of another two cellular radio licences to Hutchison Telephone Co and China Telecom Systems (HK) Ltd.

Mr York-Williams said: "The problem with cellular radio is that Hongkong is not that a big place and three distributors does seem to be overdoing it."

Mr York-Williams said Telco is studying the viability of a cable television network in Hongkong. It is interested in providing the technical back-up rather than becoming involved in programming, he added.

"We are considering it along with Cable and Wireless. Telco has the ducts and optical fibre network and is in a better position than anyone else to provide the network."

In October the rental of telephone handsets will be divorced from the service charge for telephone lines.

Mr York-Williams said that most people are expected to continue renting telephones from Telco because of the back-up service Telco provides, while buying extra telephones from CSL or other suppliers.

CSO: 5500/0158

HONG KONG

## DEVELOPMENT OF HONG KONG TELEPHONE SERVICE REVIEWED

Hong Kong SOUTH CHINA MORNING POST in English 5 Aug 85 p 10

[Text]

Telephone services in Hongkong are provided by Hongkong Telephone, since last year a member of the worldwide group, Cable and Wireless PLC.

Efficient local and international communications facilities in this leading commercial centre are essential and no less than two million telephones are put to daily use by 1½ million subscribers.

The quality and range of service compares favourably with anywhere in the world, and the flat rate system of charging encourages the use of the telephone as the basic form of communication.

Linking us with the rest of the world, the international facilities available to local customers include voice, data and facsimile transmission services.

In line with worldwide developments in the provision of data transfer, a packet switched digital transmission service, Datapak, has been available since early this year.

International phone calls were first made from Hongkong in 1931 when the first trunk cable was laid and the service opened to Guangdong. In 1949 radio telephone links were established to Shanghai, Taiwan, the US and Britain.

In 1965 the SEACOM

submarine cable was opened, enabling international calls to be carried by cable for the first time. In March 1976 there was another breakthrough with the introduction of International Direct Dialling (IDD), allowing customers to place telephone calls abroad at a cheaper rate without operator assistance.

Today registration for IDD is available free of charge to all Hongkong Telephone customers. Since there is no charge for local calls, special charging equipment is attached to an IDD line. The number of customers for IDD is nearing 200,000 and over 130 countries may be called.

Savings of up to 47 per cent are effected by IDD as opposed to operator-placed calls, so it is naturally a popular service. Use has been consistently high since it was introduced and traffic grew by 50 per cent last year. Of the 27 million international calls made in the 15 months leading up to 31 March this year, 80 per cent were made by IDD.

To increase the availability of IDD for people on the move, card operated machines are sited in public locations and clubs around the territory.

All you have to do is buy a stored value ticket and

insert it into the machine when a call is to be made. A digital readout keeps you informed about the value remaining on the ticket.

Call frequency between Hongkong and the People's Republic of China is growing rapidly since the introduction of a more outgoing economic policy and IDD is being used to connect some areas.

This year saw the opening of the latest international call centre, a fully digital exchange with provision for growth of both operator assisted and direct-dialled calls.

Although users have successfully transmitted data through the normal IDD service, a new service aimed at this market for international switched data transmission was introduced. Although today's demand is small, the telephone company is planning ahead for an expected surge in demand.

A believer in computerisation, the telephone company has for many years provided directory enquiry operators with on-line terminals. Today inventory control and fault reporting is similarly computerised, while the new Customer Information System cuts the time and cost of serving a customer.

This system maintains service records of over two million telephones and each line has a number which must allocated from one of 63 telephone exchanges located throughout the territory. The combination of telephone numbers and cable pairs within the Hong-kong Telephone network amounts to many millions.

Whereas all recording and cross-referencing was formerly a matter of written record modern computer records allow the various departments instant access to the customer database for action.

Telephones make a major contribution to our economy, and it is hoped that Hongkong will retain one of the world's most efficient and economical systems.

CSO: 5550/150



HONG KONG

JOINT MANUFACTURE OF PHONES WITH PRC PLANNED

Hong Kong HONGKONG STANDARD in English 31 Jul 85 Supplement p 1

/Text/

NATIONAL Electronics (Consolidated), the company which went public at the beginning of the year, is eyeing the China market with the recent signing of three letters of intent with the Chinese authorities for joint venture manufacturing projects in relation to telephones and liquid crystal display (LCD) watches, the chairman, Mr Lee Chi-hoo disclosed at the annual general meeting yesterday.

The letters specified that a portion of the products manufactured in these joint venture factories will be sold in China.

Mr Lee said he expects formal agreement on the first joint venture project for manufacturing telephones in Fuzhou to be signed in September and production to commence later this year.

Agreements on the other joint ventures for the manufacture of telephone products in Xiamen and the production of LCD watches in Fuzhou are expected to be finalized by the end of this year.

National was incorporated as a private company in March 1979 to act as coordinator for several manufacturing companies of the Lee family, the company offered 62.5 million shares to the public in January 1985.

Profit after taxation of the company for the year ended March 1985 amounted to \$42.57 million, representing an increase of 96% over the combined profit of the companies now comprising National for the preceding year of \$21.75 million as shown in the prospectus.

CSO: 5550/0151

JAPAN

SATELLITE JAPAN APPLIES FOR TELECOMMUNICATIONS BUSINESS

OW240841 Tokyo KYODO in English 0648 GMT 24 Jul 85

[Text] Tokyo, 24 July (KYODO)—Satellite Japan Corp, owned by a group of Japanese companies led by Sony Corp, Wednesday submitted an application to the Ministry of Posts and Telecommunications to start satellite communications service in Japan, according to ministry officials.

The application followed two Japan-U.S. joint ventures, Japan Communications Satellite Co and Space Communications Inc, which have already obtained licenses.

Satellite Japan plans to launch two communications satellites, made by RCA Corp of the United States, in November 1987, and in February 1988, respectively, the officials said.

But some ministry officials earlier told reporters that careful study is necessary before approving a new application for satellite communications service, because there could be an oversupply of the service, if three companies provided it at the same time.

CSO: 5560/059

JAPAN

MCI PROPOSES JOINT PHONE NETWORK WITH KDD

OW210207 Tokyo KYODO in English 0201 GMT 21 Aug 85

[Text] Tokyo, 21 August (KYODO)—MCI, the second-largest U.S. telecommunications company, has asked for a connection with Kokusai Denshin Denwa (KDD) of Japan, to run a Japan-U.S. long-distance phone service, said a KDD spokesman Wednesday.

MCI President Seth Blumenfeld suggested the tie-up, between KDD and MCI, the international section of MCI, during a meeting with KDD President Takazo Ishii. The spokesman said Ishii responded positively to the U.S. proposal and told Blumenfeld that he wishes to study details of the project from technical and operational points of view.

At present, the Japan-U.S. telephone service is monopolized by AT&T of the United States and KDD. MCI joined the long-distance telephone service sector in 1978 and its international department has opened services in 31 countries so far.

CSO: 5560/061

JAPAN

BRIEFS

PRC COMMUNICATIONS SYSTEM ORDER--Tokyo, 2 August KYODO--NEC Corp said Friday it has won orders from China for four microwave communications systems covering a total distance of 2,300 kilometers. The orders call for the supply of microwave communications systems to cross Quangdong Province, to connect Beijing, Tianjin and Shijianzhuang (Hebei Province) and to be established on Hainan Island and in Hebei Province. The systems include terminal transmitters, receivers and repeaters. This brings the total distance covered by orders for microwave communications systems so far placed with NEC by China to 4,700 kilometers. Their combined contract value is estimated at 5-6 billion yen. NEC estimates it has secured 80 percent of all such orders placed by China since a few years ago. [Text] [Tokyo KYODO in English 0651 GMT 2 Aug 85 OW]

INTEGRATED CIRCUIT DEVELOPED--Tokyo, July 30 KYODO -- Nippon Gakki Co., Japan's leading audio equipment maker, said it has developed a communication large scale integrated circuit (LSI) which enables different types of electronic musical instruments and personal computers to exchange signals with each other. Designed to enable general-purpose communication between computers, the new LSI can also be used to handle musical instrument digital interface (MIDI) messages, linking electronic musical instruments like synthesizers with each other in performing music, a company spokesman said. MIDI is the worldwide musical interface standard functioning as a common language for digital communications between electronic musical instruments and personal computers. The high level of integration in the new device will allow reduction of up to 75 percent in the number of integrated circuits (IC) involved in implementing such communications based on MIDI, the spokesman said. The new LSI, using complementary metal oxide semiconductor (CMOS) technology, measures 6.63 by 5.44 millimeters, and will sell for 2,500 yen per unit, the spokesman said. Nippon Gakki plans to sell the LSI's to makers which will use them for general communications purposes between computers and for MIDI communication purposes, the spokesman said. Initial monthly production will be 30,000 units, he added. [Text] [Tokyo KYODO in English 1209 GMT 30 Jul 85 OW]



GRANT AID TO MALDIVES--Tokyo, 16 July KYODO--Japan has agreed to extend a grant of up to 639 million yen to the Maldives for a telecommunications center project, the Foreign Ministry announced Tuesday. The ministry said an exchange of notes to this effect took place between representatives of Japan and the Indian Ocean republic in Colombo, Sri Lanka, on Tuesday. The Japanese aid will be used for construction of a telecommunications center building in the Maldivian capital of Male as part of a 3-year telecommunications project beginning this year. [Text] [Tokyo KYODO in English 0308 GMT 16 Jul 85 OW]

CSO: 5560/062

THAILAND

TELEPHONE EXPANSION, COMPLAINTS OF INADEQUACIES NOTED

Bangkok SIAM RAT SAPDA WICHAN in Thai 21 Jul 85 pp 7, 8

[Article: "The Telephone Problem, Complaints From Foreign Investors"]

[Text] Recently, the U.S., British, Australian, Italian, Japanese, German and French chambers of commerce in Thailand submitted a note to the Thai Chamber of Commerce stating that Thailand's telephone system is so inefficient that it is affecting their business and investments in Thailand.

"The government assured us that it would provide good communications and other conveniences when we invested in Thailand. But we are still encountering many problems," said one part of the note sent to the Thai Chamber of Commerce by the seven foreign chambers of commerce.

A news source from the Thai Chamber of Commerce said that in order to confirm the obstacles, the seven chambers of commerce cited statistics on the number of telephones and users in various countries in Asia in 1983. Comparing countries based on the number of telephones per 100 users, Thailand can provide only 1.2 telephones per 100 people while the figures for Hong Kong, Singapore, Taiwan, Burnei, Malaysia and the Philippines are 33.7, 31.6, 17.7, 11.4, 6.3 and 2 respectively.

Besides this, the seven chambers of commerce complained about problems in making calls abroad to contact their head offices or to contact customers abroad. It takes hours to place such calls.

"They said that the loss of an hour or even just 30 minutes can result in their losing a bid on a major project," said the news source. "Because of such problems, many investors often fly to neighboring countries to make their calls. Some people who were in the process of deciding whether to invest here decided not to because of this."

On 4 July, the executive committee of the Thai Chamber of Commerce held a meeting to discuss this problem. Attending the meeting were representatives from various associations such as the Hotel Association of Thailand and the Bankers' Association of Thailand. At the meeting, a resolution was passed to have Mr Phothiphong Lamsa, the secretary-general of the

Thai Chamber of Commerce, submit this matter to the government. A news source said that those attending this meeting felt that if the Telephone Organization of Thailand cannot satisfy the needs of telephone users, the government should allow the private sector to invest in this. Today's problems stem from the fact that the Telephone Organization does not have funds to invest. If the private sector is allowed to participate in this, it will be possible to solve these problems.

One of the main reasons why the Telephone Organization has not been able to satisfy the needs of users is because of its backward operations and lack of efficiency. Saying that it lacks funds for investment is just an excuse.

For example, based on the Telephone Organization's 1978-1984 economic development project, the Telephone Organization was supposed to open up 500,000 new numbers. But by the end of 1984, it had opened up only about 150,000. Besides doing things behind schedule, the Telephone Organization did not hit the target for new numbers.

The excuse given by the Telephone Organization is that the government was slow in approving this project. It claims that it asked for permission in December 1976 but that the government approved this in April 1984.

However, that is just an excuse. The fact is that while the Telephone Organization opened up another 150,000 numbers by the end of 1984, to date, it has been able to install only about 50,000 telephones for customers.

A news source in the Telephone Organization told SAPDA WICHAN that "of the 50,000 telephones installed, only about half can be used. The others cannot be used yet because the line nets have not been completed."

The news source said that because of this and because of the way the Telephone Organization operates, the Ministry of Finance has refused to guarantee the loan for the Telephone Organization's 1984-1988 economic development project, which has an investment budget of approximately 43 billion baht.

"The Ministry of Finance feels that the Telephone Organization's backward work methods will pose an obstacle to increasing revenues. At the same time, each of the projects formulated by the Telephone Organization calls for investments far above present revenues," said the news source. "For example, the 1977-1984 project has still not been completed and so it has not been possible to generate income from this project for investment in future projects."

The original budget as stipulated in the Telephone Organization's 1984-1988 economic development project was 37 billion baht. But after the government devalued the baht, the budget increased to 43 billion baht. The Telephone Organization intended to use revenues from services to cover 22 percent

of the costs, with the other 78 percent borrowed. But because of the present situation, the Telephone Organization can use its revenues to cover only 8 percent of the costs.

The Ministry of Finance has continually said that it will not guarantee the loan for this project. It has said that it will stand guarantee on a year-to-year basis only for those elements of the project that are absolutely necessary. It will not guarantee the entire project. It feels that if it guaranteed the entire project and the Telephone Organization did things as in the past, the Telephone Organization would not be able to pay off the debt. On the other hand, if the ministry did not guarantee any part of the project, the Telephone Organization would not be able to do anything, and this would cause problems for the people.

Even though the Ministry of Finance will guarantee loans for the Telephone Organization, the shortage of telephones will continue. Because based on the Telephone Organization's 1984-1988 project, the target is to have a total of 1,873,000 telephones in service. (At the end of September 1984, there were a total of 519,500 telephones.) This would be a rate of 3.21 telephones per 100 people.

The Telephone Organization set this target when it began formulating its plan. But everything has changed now. The needs of the people have increased, and nothing has been done to implement this project. Also, since the Ministry of Finance will guarantee loans only on a year-to-year basis, the Telephone Organization will definitely have to extend the project time period another 3 years. And in the meantime, telephone use needs will increase.

The question is, isn't it time that the government considered the proposal to let the private sector invest in telephone activities? Because the longer it delays doing this, the worse the investment atmosphere will become. Investors will turn to other countries that can satisfy their needs.

11943

CSO: 5500/4346



THAILAND

BRIEFS

CABINET ON SATELLITE PURCHASE--The cabinet has tabled the minister of communication's proposal to purchase a satellite for communications use since this project would cost more than 2 billion baht. Also, two satellites would have to be purchased. At the same time, domestic use is limited. At the Government House on 2 July, Mr Trairong Suwannakhiri, a spokesman attached to the Office of the Prime Minister, announced the results of a cabinet meeting to reporters. He said that previously, the Ministry of Communications had proposed that the cabinet consider purchasing the "Parapa" satellite and that the cabinet had entrusted Wing Cdr Suli Mahasanthana, the minister attached to the Office of the Prime Minister, with the task of determining the suitability of this. At this meeting, Wing Cdr Suli told the cabinet that after careful consideration, he feels that very few satellite channels are used in Thailand today. It would cost \$85 million, or 2.3 billion baht, to have a domestic satellite. This does not include the cost of having a back-up satellite. After considering the matter, the cabinet passed a resolution to "halt" the purchase of a satellite. This will be considered again when the private sector expresses an interest in investing in this. [Text] [Bangkok THAI RAT in Thai 3 Jul 85 pp 1, 18] 11943

CSO: 5500/4346

CANADA

FREE FLOW OF ELECTRONIC DATA SAID COSTING CANADIAN JOBS

Toronto THE TORONTO STAR in English 2 Jul 85 p D1

[Article by Roy Shields]

[Text]

Like it or not, the border between Canada and the United States is growing fainter.

It may not be evident at customs checkpoints because the erosion is electronic and cannot be seen.

It began two decades ago, playfully, as some Canadians set up satellite dishes to pick up U.S. television programs. But every day now rivers of electronic information in billions of bits and bytes flow undetected between Canadian companies — many of them U.S. subsidiaries — and large American computer centres.

Federal studies — which at best are estimates — indicate that Canada has already lost 25,000 data-processing jobs to the U.S. in this electronic free trade. The annual outflow of dollars to the U.S. for computing services is estimated to be \$1.5 billion.

But an alarmed Canadian Independent Computer Services Association, a co-operative of 60 major data-processing firms across Canada, claims the government's estimates are far too low.

The group places the number of lost jobs at 180,000. It also accuses the federal communications department of quietly aiding and abetting Canadian companies that want to use their U.S. parents' computer centres for data processing.

As Canada and the U.S. talk about free trade, the data processing case is a classic example of what can happen when all the barriers are taken down: Canadian sovereignty can be jeopardized and jobs can be lost.

Over the past decade — unknown except to a few businessmen and government bureaucrats — the border disappeared entirely in electronic free trade of corporate data processing.

The issue was rarely raised because it was seemingly beyond control — or legislation. Indeed, even to gather accurate information on what is known as trans-border data flow would have required checking the amount of digital electronic information crossing the border on telephone trunk lines, or by satellite transmission. And that, in effect, would have come perilously close to tapping telephone lines, which government doesn't dare to do.

William Loewen of Winnipeg, president of Comcheq Services and executive director of the computer services association, says his group tried in vain with the Pierre Trudeau government to sound alarms.

**There are no villains  
Canadian expert says**

Now the lobby has moved to

the Brian Mulroney government, which has raised anew the Canada-U.S. free-trade issue. But surely the association can't expect more from the Conservatives than it did from the more nationalistic Liberals?

Loewen's wan reply: "Well, my hope is that this government has a better understanding of the value of a dollar — and a job — than the previous government did."

"I also hope that it will take a more Canadian view of the problem. Quite frankly I think that they are."

"They'll at least talk to us. The previous government wouldn't — that is, until they got into Opposition. Now they want to talk."

While the debate grows over the computer industry's example of unrestricted free trade, one man is ahead of everyone. He is Peter Robinson, of the communications department's international relations branch, one of the world's foremost authorities on trans-border data flow and chairman of a continuing think-tank on the subject by the Organization for Economic Co-operation and Development.

Robinson says there are no villains in TDF — as trans-border data flow is known among the experts. Like free trade itself, he adds, the complex ramifications of it "are just beginning to be understood."

And the current free-trade debate in Canada will help focus on sovereignty problems now facing all countries — but especially Canada — in this new era of digital electronic information that knows no borders.

No one has paid attention to trans-border data flow, Robinson last year told a conference sponsored by the University of Western Ontario's School of Journalism, because "it has no sex appeal."

"I have seen eyes glaze over when it is mentioned. And I'm sure that people tune out and start to think what they're going to be doing the following weekend."

"But many issues have been raised under that label — ranging from human rights, through cultural identity and economic recovery, to national sovereignty and national security — hardly eye-glazing topics."

Most people are vaguely aware of the problems of privacy that are created by the uncontrolled electronic transfer of records and credit data across borders — indeed, around the world. Robinson says international agreements can be made that will alleviate fears in this area.

But this is just the tip of the iceberg. In economic terms, trans-border data flow poses problems that are just beginning to surface.

Goods may be stopped at borders, checked, refused entry, or have tariffs and taxes imposed. But it is now possible for a company in Boston or Chicago to run factories in Toronto, Sao Paulo, Bombay and Singapore with nothing more than a sophisticated computer centre connected to robotic manufacturing processes tended by a small support staff.

The goods produced by these computerized companies for consumption in various countries would avoid tariffs, do nothing to ease unemployment, contribute nothing in the way of research and development and form no part of the corporate responsibilities that usually go with national life.

Furthermore, books, video cassette tapes and even films can all be reduced to digital electronic bits and bytes — the seemingly infinite combination of zeros and ones — that can cross international borders undetected.

Robinson's mission is to try to ease international fears about trans-border data flow, and he warns against exaggerated rhetoric on the subject. Yet he often displays his own worry about what is coming.

"One of the most important issues and one that I see becoming a major focus of international debate," he says, "is the degree of competition that will be permitted in the international telecommunications infrastructure."

Technological developments known as ISDN (Integrated Services Digital Network) and OSI (Open Systems Interconnection) are both aimed at making the telecommunications network more transparent to the user.

In other words, the user of the network will be able, in effect, to plug in his computer, or terminal, to the network much as we plug in an electric light or major appliance to the electricity supply and expect it to work with a minimum of fuss and bother.

This will allow a wide variety of information providers and information-related service providers to plug directly into the network.

And, more importantly, they will then become directly accessible from anyone else in the network — even from a foreign country.

What this means, he says, is that "it will be possible for services to be offered directly from providers in one country to users in another" without regard to the laws, regulations or taxation policies of the receiving country.

The problem already exists among U.S. subsidiaries in Canada, although Robinson puts it more delicately. He simply says: "At issue here is the extent to which a sovereign state will

tolerate firms operating within its borders being subject to the laws of another country."

### Misconceptions abound on data law

Robinson expressed his personal views on this subject at a conference co-sponsored by Columbia University and the Canadian Institute of International Affairs last year.

He told his American audience about troubling "misconceptions that have arisen" in the U.S. over what is perceived as Canadian attempts to impede trans-border data flow. Specifically, American data-processing firms were complaining, as one of them put it in letters soliciting support for its position, that "Canada is now requiring all banking data to take place in Canada and not abroad."

Robinson wrote the firm in question noting that "your statement regarding data processing by banks in Canada is not correct."

"His response to me was: 'Your comment about the misconception of Canadian law is valid, although the misconception is widespread even among some American bankers with whom I have talked.' From this, it seems to me that the conclusion I am supposed to draw is that if a misconception is widely held it is okay to repeat it."

### Is Canada losing its sovereignty?

In an address to the Royal Society of Canada, Robinson focused on the most painful subject of all: the loss of sovereignty.

Sovereignty, says Robinson, has become "an emotionally charged word" that gives rise to fears "about the potential for loss of human rights, such as

privacy, fears about the transfer of decision-making outside a country, fears about national security, fears about lack of control over data stored abroad that are vital for a country's well being — in general, fears of the unknown, fears of what might happen.

"These fears create a growing feeling of losing control of being driven by the technological push, or as (other experts) have suggested: This can result in a national self-perception of importance, an inability to effect one's vital choices and the effective erosion of one's political sovereignty."

But the painful reality, Robinson notes, is that there "is need for governments to recognize that developments in computing and in telecommunications have rendered national boundaries, in large measure, technologically irrelevant."

"If this reality is ignored, governments may find themselves, tilting at windmills, like Don Quixote."

"At the same time, however, there is need for industry to recognize that, however irrelevant national boundaries may appear from a technological viewpoint, they are very real politically, economically and, indeed, from virtually all other viewpoints."

So what is the solution to the technological reality seen in our vanishing electronic borders?

There is none. It is happening on its own, borne by technology that outpaces the lawmakers and social critics. In fact, at this stage, few are fully aware of the problems and the opinions on the issue.

But Robinson and his colleagues suggest a lot more attention will be paid to trans-border data flow in what they consider to be a long-overdue national debate on the full implications of free trade.

CANADA

CABINET AGREES TO BRITISH TELECOM TAKEOVER OF CTG

Toronto THE GLOBE AND MAIL in English 13 Jul 85 p B4

[Article by Lawrence Surtees]

[Text]

The federal Cabinet has made its first decision under the Investment Canada Act and allowed British Telecommunications PLC of Britain to buy CTG Inc.

British Telecom announced plans to acquire Toronto-based CTG on May 7 for about \$20-million. The deal marks the first acquisition in North America by British

Telecom, the second-largest telephone company in the world. British Telecom, through its Canadian holding company, also wants to buy 51 per cent control of Mitel Corp. of Kanata, Ont., for a \$5-million.

CTG is one of the largest independent distributors and installers of business telecommunications products.

British Telecom said that approximately 3,049,900 common

shares of CTG and 650,000 share purchase warrants have been tendered under its offer, constituting 81.3 per cent of the common shares outstanding and 83.6 per cent of the warrants. The offer expires at midnight July 22 and was conditional upon the tender of 2.5 million shares and 367,000 warrants.

Ed Lavin, CTG president, said he is "delighted that the deal is done and approved."

CSO: 5520/48



CANADA

## GUELPH UNIVERSITY COMPUTER CONFERENCING SYSTEM DISCUSSED

Toronto THE GLOBE AND MAIL in English 12 Jul 85 p B13

[Article by David Halvig]

[Text]

Relying largely on word-of-mouth advertising, a computer conferencing system at the University of Guelph in Guelph, Ont., has attracted more than 1,400 users in 29 countries.

The University of Guelph Conferencing System (CoSy) began operating several years ago, but was not opened to the public until late last year. Although many of the system's conferences are classified as either "closed" or confidential, more than 70 conferences on subjects ranging from astronomy to the Unix operating system are open to all subscribers.

Like hundreds of computer bulletin boards across North America, the university's system allows users to exchange information about microcomputers, tell jokes, and talk about adventure games. However, the Guelph system is

not overpopulated by the teen-aged computer hackers who seem to take over bulletin boards in many cities.

CoSy subscribers — many of them university professors — engage in serious discussions about music, mainframe computers, mathematics, movies and dozens of other subjects. The CoSy system offers electronic mail, and is also capable of handling videotex graphics codes.

University researchers use CoSy to exchange information; and several companies use the system to hold confidential online conferences with their branch offices.

A subscription to the Guelph system costs \$20 a month, and connect time costs \$3 an hour. Users are billed for a minimum of five hours of connect time a month, whether they use the system or not. Subscribers who live outside Guelph must

pay an additional \$7 an hour if they connect with CoSy through the Datapac communications network.

"We have users in Japan, Greece, Chile, Barbados and even one in Moscow," said system manager Thomas Smith. Although most current users learned of the system from friends, the university's Office of Industrial Services is starting a marketing program to locate additional customers. Amateur scientists, private-sector researchers, consultants and businesses are potential users, Mr. Smith said.

Byte magazine, a U.S.-based microcomputer magazine, has signed a licensing agreement with the university that will allow the publication to use CoSy software to run the Byte Information Exchange. A commercial trial for the conferencing system is to begin this fall in four U.S. cities.

CANADA

TELESAT CANADA APPLIES TO SELL DIRECTLY TO USERS

Ottawa THE CITIZEN in English 16 Jul 85 p D5

[Text]

Telesat Canada Ltd., the company that operates Canada's domestic satellites, has applied for permission to alter fundamentally the way it markets its services.

The company asked the Canadian Radio-television and Telecommunications Commission Monday for permission to change its business functions from that of a wholesaler of satellite services to that of a retailer of satellite channels directly to users.

Telesat is a member of the 10-company Telecom Canada, a consortium of communications carriers. Its original 1976 charter of membership in Telecom Canada restricted Telesat's activities to carrying signals originating from customers of the country's nine telephone companies.

Under the new application to the CRTC, Telesat would be allowed to carry on market research and the development, introduction, sales and maintenance of all types of satellite-based telecommunications services.

In 1981, Telesat began retailing satellite channels directly to broadcasters. But the company was restricted to selling whole channels directly to bona fide broadcasters only.

If the CRTC approves its application, Telesat will be able to sell a complete range of broadcast distribution and telecommunications services on either full or partial satellite channels. And it will be able to sell its services directly to customers without going through the telephone companies.

Monday's application is the latest in a series of moves by Telesat to diversify and to attract new business. The company has been searching for new sources of revenue to offset losses caused by satellite overcapacity.

CSO: 5520/48

CANADA

## CRTC MOVING FROM REGULATORY TO SUPERVISORY ROLE

Toronto THE GLOBE AND MAIL in English 20 Jul 85 p B6

[Text]

The Canadian Radio-Television and Telecommunications Commission is moving away from detailed regulation, commission chairman André Bureau says in the federal agency's 1984-85 annual report.

"What we are moving towards is, for want of a better term, a supervisory approach," he said.

The 62-page report was tabled in the House of Commons this week.

Mr. Bureau said the supervisory role is not a substitute for formal regulation but is complementary to it.

The pace of technological change seems sometimes to outrun the capacity of policy

makers to adapt, Mr. Bureau said. "We have reached the point where the imaginable has become a reality not easily managed. Meeting the technological challenge successfully must inevitably be the first priority of the CRTC for the rest of this decade."

The report states that under its broadcasting responsibilities the CRTC handled nearly 4,000 applications for changes in licences, rate increases and the like, up 16 per cent from a year earlier. The average processing time for applications decreased by 18 per cent.

Mr. Bureau noted that the CRTC is virtually self-sufficient.

Revenue from broadcast licence fees covers operating expenses of about \$25-million, he said. The financial statements show that personnel costs account for \$19.2-million of total expenses.

Highlighting an application by Toronto-based CNCP Telecommunications to provide an alternative long-distance telephone service, the report said universality, accessibility and quality of service at affordable prices must be paramount concerns.

The report noted several Government initiatives that will have an impact on the CRTC. These include:

□ The Caplan-Sau-

vageau Task Force, directed by the Minister of Communications, Marcel Masse, to review several broadcasting issues.

□ A task force examining ways of simplifying the government regulatory process.

□ Bill C-30, an act to amend the CRTC Act, the Broadcasting Act and the Radio Act, which is before the Standing Committee on Communications and Culture.

Mr. Bureau repeated the CRTC's concern that the wording of Bill C-30 might cause undue Government intervention into the day-to-day affairs of the regulatory body.

CS0: 5520/48

CANADA

MITEL LOSES \$15 MILLION IN FIRST QUARTER

Ottawa THE CITIZEN in English 28 Jun 85 p E7

[Text]

Kanata's Mitel Corp. lost \$15.2 million on revenue of \$84.6 million in the three months ended May 31, the telecommunications company announced Thursday.

The loss for the first quarter, traditionally Mitel's weakest quarter, compares to a loss of \$17.8 million on revenue of \$71.8 million for the first quarter of fiscal 1985.

The company attributes the loss to increased marketing costs due to the expanded marketing network for Mitel's SX-2000 communications system, higher interest expenses and the worldwide decline in the semiconductor market.

The first-quarter results include \$1.9 million from an increase in government assistance for Mitel's Renfrew plant.

President Terry Matthews said in a news release the company had anticipated and budgeted for the loss, but Mitel continued to make progress in the quarter.

"Inventory levels were controlled during the quarter, demonstrating a significant improvement over the same period last

year," Matthews said.

"For the first time in four years, Mitel achieved significant positive cash flow (of) approximately \$23 million, ... due to collection of high year-end receivables and reduced capital expenditures."

Mitel lost \$32.1 million on revenue of \$370.6 million in the fiscal year ended Feb. 22, 1985.

Analyst Philip Wright of Merrill Lynch Canada Inc. said Thursday that despite the loss, the results are encouraging.

"There's a silver lining in these numbers, because the company's senior management is starting to move in the right direction from the point of view of the positive cash flow."

"They've cleaned up their balance sheet, which is stronger than it has been in a long time."

Wright said he expects the company to show a profit for the current fiscal year, provided the takeover by British Telecommunications PLC goes through as scheduled in the fall.

Although British Telecom and Mitel have reached agreement in principle for the \$12-billion Brit-

ish telecommunications authority to acquire 51 per cent of Mitel, the deal could be delayed because of a decision to refer the planned acquisition to Britain's Monopolies and Mergers Commission.

Had the referral not been made, the acquisition could have proceeded as early as next month, after approval from Investment Canada (formerly the Foreign Investment Review Agency).

Investment Canada normally takes only 60 days to process an application.

The monopolies commission is reviewing the deal because of pressure from British telecommunications companies, who are concerned that they will lose their status as preferred suppliers to British Telecom if the company acquires its own equipment manufacturer.

They are also concerned that a revitalized Mitel will compete against them more effectively in world markets.

Mitel and British Telecom say the deal is not in jeopardy, although it could take longer than anticipated because of the latest hurdle in the review process.

CSO: 5520/48

CANADA

# ONTARIO URGES DECISION ON HOW TO REGULATE TELIGLOBE

Toronto THE GLOBE AND MAIL in English 29 Jun 85 p B5

[Article by Lawrence Surtees]

[Text]

The proposed sale of Teleglobe Canada to private interests by the federal Government should not proceed until Ottawa has decided how to regulate the company, says the Ontario Government.

That concern is only one of 10 expressed by the province in a submission to the federal Government outlining its views.

Teleglobe is the federal Crown corporation that provides overseas telecommunications services to and from Canada. It is rumored that some 20 companies and organizations have submitted bids to

buy Teleglobe, including bids disclosed by Telecom Canada and a joint bid from Canadian National Railways and Canadian Pacific Ltd. of Montreal.

The Conservative Government has kept alive the promise made by the former Liberal government to sell several Crown corporations. In deciding to sell Teleglobe, however, many significant telecommunications policy issues are raised that Ottawa has yet to answer.

In its brief, Ontario said the federal Government must first decide how, and by what agency, Teleglobe should be regulated. "While Teleglobe is not currently subject to formal regulation, it is inconceivable that as a monopoly privatized corporation it should continue to be unregulated."

Ontario argues the Canadian Radio-Television and Telecommunications Commission should be Teleglobe's regulator.

The province also cautions Ottawa not to select a bid that, because of the price paid or the financing, would tend to raise monopoly rates. In a veiled reference to bids from domestic telephone companies, Ontario said Ottawa should not select a purchaser that would "inhibit competition."

In spinning off Teleglobe, the federal Government must also be careful not to abandon Canada's international interests. Teleglobe is a signatory to several international treaties and represents the national interest before those bodies.

Under Government ownership, it was easier to co-ordinate foreign policy objectives with Teleglobe's interests because the company reported to a Cabinet minister.

"The federal Government must therefore consider the suitability of various bidders to continue to carry out this role."

CSO: 5520/48



CZECHOSLOVAKIA

## NEW 'ARPO' ANTENNA SYSTEM EXPLAINED

Prague TELEKOMUNIKACE in Czech No 6, 1985 pp 84-86

[Article by Eng Milan Hauska, CSc, Prague Communications Research Institute:  
"What is ARPO II?"]

[Text] The new transmitting antennas for the medium wave and long wave bands which have been erected in Czechoslovakia, practically since 1975 after the Regional Administrative Conference for Frequency Allocations of the International Telecommunications Union and the introduction of megawatt power high frequency transmitters are the ARPO-type antennas [antennas with adjustable current patterns] similar to the ARRT antennas in the Soviet Union. The Prague Communications Research Institute began working on their design as early as 1955 in coming up with modifications of the antennas for transmitting abroad in Litomysl and particularly in the proposal for long wave antifading transmission antenna systems for the Topolna radio communications center in 1957. The basic idea came from a paper by H. Graziadei<sup>1</sup> and an article in the magazine RADIOTECHNIKA<sup>2</sup>.

The ARPO type antenna is a transmitting antenna of modern design distinguished both by the method of feeding it and by the method of tuning its lower portion to achieve the kinds of current pattern changes over the entire length of the radiator as are typical for antifading vertical diagrams for vertically polarized asymmetric radiators. The name of the new antennas is derived from the principle by which various shapes of the vertical radiation diagram are achieved with a constant relative length of the antenna, thus  $l_a/\lambda = \text{constant}$ . The ARPO type antenna is fed up high at point N, at a height equal to one-third to one-half of the overall length  $l_a$  while the lower part of the antenna is connected to ground through a variably tunable impedance  $jX_L$ , by which it is practically possible to achieve changes in the antenna's current pattern over very broad ranges. The principal design is shown in Fig. 1, including several variations of possible and adjustable current patterns. The definitive parameter for transmitting antennas is the so-called efficiency curve, by which we mean the dependence of the ground element of the intensity of the field  $E_p$  [mV/m] on the relative length  $l_a/\lambda$  for a conventional plain radiator fed at the foot, assuming a high frequency power output  $N_a = 1$  kW and 100 percent efficiency at a distance of one kilometer from the foot of the antenna. This curve is shown in Fig. 2. With the ARPO antenna, it is possible to achieve this curve for a given

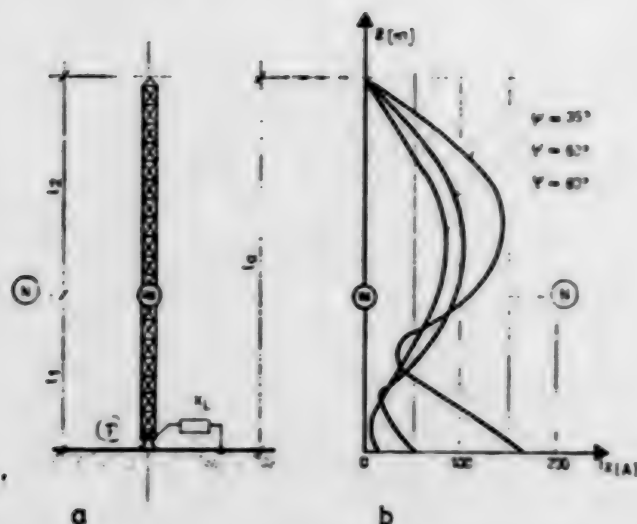


Figure 1. Principal design elements of the ARPO type antenna (a) and its current pattern (b). N is the elevated feed point and P is the foot of the antenna.

relative antenna length of  $l_a/\lambda = \text{constant}$  by changing the load impedance at its base  $jX_L$  and its replacement function  $\Psi$  [Fig. 3], which testifies to the possibility of creating any given shape of the vertical radiation diagram with a constant relative antenna length  $l_a/\lambda$ . If there is a region of antifading lengths for the bottom-fed plain radiator, then the CAF [conventional antifading] antennas have a relative length  $l_a/\lambda$  of 0.54 to 0.60. In contrast, the ARPO antennas are tunable to the antifading operational mode through the tunable impedance at the foot  $jX_L$  over a range of relative radiator lengths  $l_a/\lambda$  of 0.25 to 1.10 and their adjustment can always be optimized for the specific requirements of each antenna location.

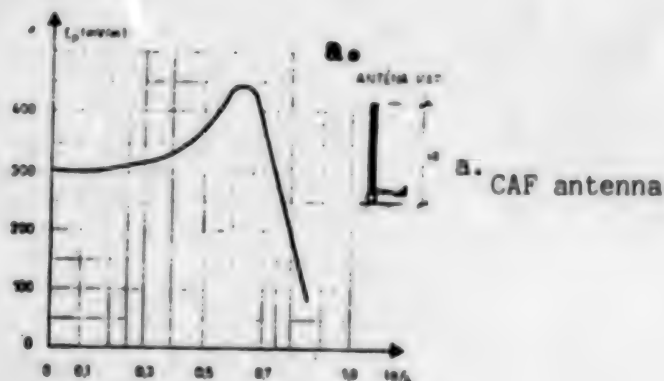


Figure 2. Efficiency curve of conventional antifading [CAF] antenna [a plain radiator fed at the foot]

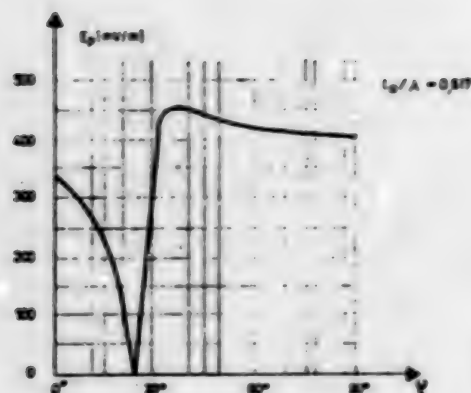


Figure 3. Efficiency curve of the ARPO antenna.

The basic principles of feeding and tuning ARPO type antennas can be met by a number of varying design solutions which also address supplementary problems such as, for example, the guying system insulating arrangement, the base insulator, lighting, grounding, etc., which are factors which come into play in operation and in maintenance, which make it possible to achieve a certain simplicity in the antenna's shape along with its maximum stability. Thus there gradually developed two Czechoslovak models designated as the ARPO I and ARPO II antennas.

The ARPO I antennas are the first transmission antennas developed at the Prague Communications Research Institute on the principle of regulating the current pattern and designed in the form of anchored masts with active cables the entire length of the structure. Essential components are always the anchoring guy cables, sometimes a base insulator, and always the so-called tuning trough, designed to take care of both the elevated antenna feed through use of the active cables in the lower part of the antenna, and also the tuning impedance  $jX_L$ . Their representatives in the network of Czechoslovak broadcast transmission are the Cizatice, Liblice II, and Topolna antenna farms constructed from 1976 to 1978, which have been in operation for quite a while.

The ARPO II antennas represent a further variation on this type of transmitting antennas, working on the principle of regulating the current pattern, where the design and operational experience was utilized, including a solution for the inadequate number of guying system insulators and operational and maintenance difficulties.

The basic structural elements of the antenna and its parts are designed in the form of a selfsupporting tower grounded at the foot with a simply formulated elevated feed and with active antenna cables only in the bottom portion of the structure, which are also used to create the adjustable impedance at the foot,  $jX_L$ , one of the basic conditions for the functioning of an ARPO type antenna.



Figure 5. ARPO II antenna at the Melnik radio communications center.

The first antenna of this type, theoretically and experimentally proposed and tested at the Prague Communications Research Institute and whose design was worked out by dr Eng J. Kozak, CSc. and Spojprojekt [Communications Projects] Prague, was constructed at the Melnik radio communications center in 1983 [Fig 5]. It is a slender [1 to 21 ratio] selfsupporting tower of rectangular shape of a length  $l_1$  of 150 meters, anchored at the base in a monolithic reinforced concrete block, grounded, and connected to an adequate ground radiating network. The construction of the tower is of rolled steel beams, never tubes, which makes it possible to achieve the desired slender shape without problems. In terms of the radio electronics, the tower is additionally provided at 60 meters high with a system of 12 copper cables around the circumference which form the lower active part of the ARPO type antenna. The conductors around the circumference are conductively connected with the supporting structure at half their length and thus form two cavities, an upper and a lower, with specific functions. The lower cavity also forms tunable impedance at the foot  $jX_L$  and the upper one is then part of the adjustable upper member on the internal coaxial feed of the elevated antenna feed. The antenna has an elevated feed at the 57 meter level through an internal pseudocoaxial wire feed leading into the base antenna hut in the tower structure. The so-called C cables are an additional part of the equip-

ment of both cavities which make possible operational tuning of the antenna in the frequency range of 900 to 1605 kHz while maintaining optimum arrangements of the current pattern to give antifading radiation diagrams of the antenna in the vertical plane.

The installation of an antenna hut within the antenna structure was dictated by still another requirement, that the antenna also work at a reserve frequency  $f_r$  with semiautomatic tuning. Since the ratio of the frequencies  $f_p/f_r$  is 2, and thus outside the ARPO II antenna band, on the basis of a theoretical analysis another method of feeding the antenna for the skip frequency  $f_r$  was proposed and its design is shown in Fig. 4. From this schematic can be seen that the antenna at the skip frequency operates as a base-fed antenna through the shunt and with an elevated series tuning at the original feed point for frequently  $f_p$  through the  $jX_N$  impedance which is formed by the upper cavity in parallel with the shorted internal coaxial feed of the ARPO II type antenna. By a theoretical and experimental analysis in the antenna proposal it was shown that this operational design used also allows broad changes in the current pattern over the entire length of the radiator by tuning the elevated series impedance  $jX_N$  and that this makes it possible to achieve vertical antifading radiation diagrams in a given frequency band. Of course, the limiting factor is the amount of voltage at the elevated feed point N and also at the base of the antenna in the tuning elements and adjustments.

As impedance measurements during adjustment work at an ARPO II antenna already in operation showed, at the basic operational frequency  $f_p$  the antenna is capable of operation in the skip working mode [Fig. 4] in the frequency band of 600 to 1300 kHz with a efficiency curve substantially comparable to a plain radiator [Fig. 2], understandably as long as there is no demand for controlling the current pattern of the antenna in that mode by tuning the impedance  $jX_N$  in the antenna hut.

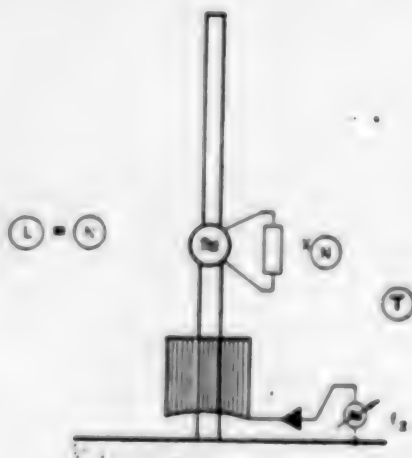


Figure 4. Schematic for feeding the ARPO II antenna for skip operations at the  $f_r$  frequency. L is the tuning point and T is the shunt.



One can thus sum up that the first ARPO II type antenna at the Melnik radio communications center by using the two feed concepts [Fig. 1 and Fig. 4] is capable of covering the frequency band of 600 to 1605 kHz, while in the frequency band 860 to 1605 kHz it can be set up for the antifading operational mode while always optimizing according to the conditions of the specific location of the center.

Even though there has already been a comparison of the properties of the ARPO type antenna with the conventional antifading antenna [CAF] published in this magazine<sup>3</sup>, it is useful to emphasize that the ARPO antennas are characterized by the following basic properties:

- adjustment of the current pattern which results in the formation of a vertical diagram of radiation in the antifading mode of operation with the capability of optimizing in a broad frequency band for the given dimensional variation of the antenna [the band  $l_a/\lambda = 0.25$  to  $1.10$ ], as well as the high level of tuning of the antenna as regards the working frequency, understandably after new adjustments to the antenna farm elements;
- the long performance life of the robust design of the active radiators;
- higher gain as compared with the CAF antennas;
- a negligible number of momentary outages under actual operational conditions [10 momentary outages in roughly 5 months].

Their main advantage with optimum adjustment of the vertical diagram consists of the fact that during the nighttime interval [NI] they offer a far greater serviced listening area than the CAF antennas, which better utilizes the high frequency power of the antenna farm and penetrates the fading region at lower field intensities. In this sense, the CAF antennas are unvariable, that is, an increase in the high frequency power of those antennas is not accompanied by greater range at night and also does not change the so-called serviced listening area during the nighttime interval. This is the basic reason why a number of communications authorities were searching for a new type of antenna, especially for higher high-frequency power outputs.

The antenna load capability is determined by the maximum high frequency power output which a given type can handle without a substantial reduction in the operational stability as measured and checked on by momentary outages or the reaction to reflectometric persistence in extreme weather conditions. This is mainly determined by the design of the basic radiating body, the ratio of the antenna height to its diameter, and secondarily by the insulator equipment and coupling and the main feed. We distinguish between the calculated antenna load capability on which the design is theoretically proposed and the actual operational load capability derived from operations, where the influence of the location also of course comes into play. This applies for the CAF and ARPO I antennas, but not for the ARPO II antennas. For the ARPO II antennas, the calculated load capability is practically the same as the actual operational load capability because there is no effect

from the antenna guying anchors. The calculated load capability of the ARPO I and II antennas is determined by the characteristic impedance  $Z_{oh}$  of the main feed and amounts to:

-- for  $Z_{oh}$  of 150 Ohms -  $N_{max} = 600$  kW and

-- for  $Z_{oh}$  of 60 Ohms -  $N_{max} = 1500$  kW

for a radiator with a 1.5 safety factor for the most critical storm situations. ARPO II type antennas are capable of even working during local storms, as was shown by operations at the Melnik station, which is a result of removing the guying system from the antenna design of the asymmetric radiator and the multiple grounding design of both the functional cavities and the internal coaxial feed, including the coupling.

In the adjustment work at the ARPO II antenna which took place in two stages and the subsequent test operations, considerable material was acquired which has been evaluated in detail. There was even no lack of continuous graphic records of the horizontal and vertical radiation diagrams acquired through the use of a helicopter with the expert assistance of a group of employees of the Inspectorate of Radio Communications and the Technical Control Department [OTK] of the Directorate of Radio Communications Prague. The first operational adjustment was further subjected to a precise measurement of the territory covered by the signal, where the results were derived from continuous graphic records of the field intensity from a moving measurement vehicle. It is now possible to state that the new type of transmitting antenna for the medium wave band has met the requirements which the theoretical and experimental proposal for the ARPO II antenna laid out.

On the basis of a collection of results not only of control measurements, but also from operational tests and mechanical checks, we can report that the ARPO II antenna, the subject of two Czechoslovak patents Nos. 203 321 and 215 333, whose main contribute consists of savings in hard currency resources for the purchase of expensive and delicate anchor insulators from the capitalist countries, is also characterized by other advantages, such as:

-- A high level of operational stability for a given high frequency power output considering the momentary outages in comparison with all previously used types of antennas with antifading vertical radiation patterns in the medium wave band, as operational statistics have confirmed.

-- Extreme frequency tuning capability and thus can be used practically in the entire medium wave band.

-- The capability of operating in the antifading mode in the band from 860 to 1605 kHz after installing tuning cavities and adjustments to the main feed.

-- Reduced demands for maintenance and operational shutdowns [no need for checking and replacing anchor insulators] and a shorter time to build an antenna without guying.

-- The clear patent claim of the invention if it is used outside the country. It is unique to Europe, since no similar antenna design is to be found in the literature which can claim the negligible number of momentary outages, work in extremely stormy electrostatic fields, and maintaining an adjusted antifading mode over a broad range of frequencies.

The ARPO II antenna is an example of cooperation by communications organizations [the Prague Radio Communications Directorate, the Prague SUM plant, the Communications Research Institute, and Strojproject Prague] where in the shortest possible time they succeeded in coming up with a modern design for a new transmitting antenna for the medium wave band with good radio electrical parameters and with demonstrable economic benefits.

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6285

CSO: 5500/3030

POLAND

# A/D CONVERTER, DATA LINE MONITOR PATENTS REVIEWED

Warsaw PRZEGLAD TELEKOMUNIKACYJNY in Polish No 3, Mar 85 p 94

[Article: "Inventions and Patents"]

[Text] Electronic Device for Monitoring Data Transmission Lines

Invention title: Electronic device for monitoring data transmission lines.  
Inventor: Marian Odyniec. Invention owner: Mera-Elzab Computer Factory at Zabrze.

The object of the invention is continuous monitoring of the logical states of a bipolar data transmission line used mainly for interface control in information processing systems.

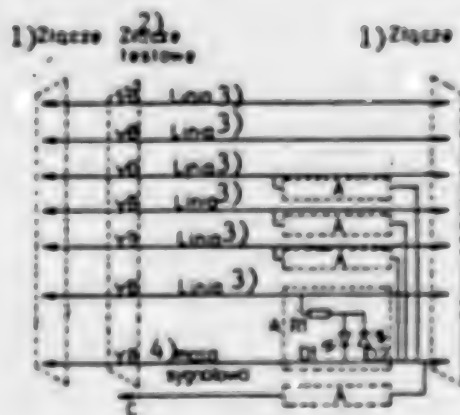


Figure 1.

Key:

1. Connection
2. Test connection
3. Line
4. Massive signals

In the device (see Fig. 1), a required number of circuits A are connected between the massive signals and the interface line. The circuits consist

of an oppositely connected electroluminescence diode ( $D_1, D_2$ ), providing three-state information. The value of the resistor  $R_1$  connected serially to the electroluminescent diodes through which the signal passes is selected such that the circuit does not overload the interface and the flowing current ensures adequate intensity of diode luminescence. Typified circuits A have external contacts C, connected to arbitrarily chosen point of test B.

#### Analog Digital-Convertor

Invention title: Analog-digital convertor. Inventor: Zbigniew Magonski. Invention owner: Research and Development Center of Hybrid and Resistor Microelectronics at Krakow.

The objective of the device is to accelerate conversion.

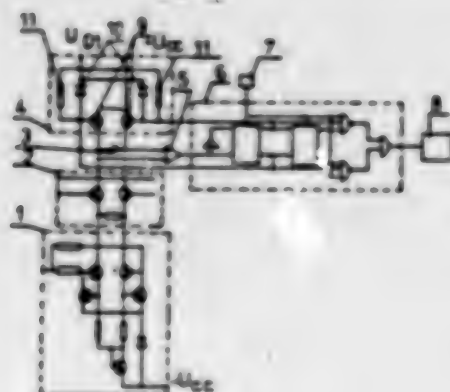


Figure 2.

The convertor, according to the invention (see Fig. 2), has two sources of reference current 1, connected with difference convertor 2, which is connected to the plate of capacitor 3. Switch 4 of convertor currents is also connected to this capacitor. The switch is connected with digital block 6 and inputs of comparator 5 are also connected. It is followed by digital block 6, with clock 7 and counter 8.

Convertor 4 of reference current consists of two transistors 9, two diodes 10 and two resistors 11.

The transistor emitters 9 are connected with capacitor 3; to their bases, a digital block, the anodes of diodes 10, and resistors 11 are linked. The cathodes of diodes 10 are connected to the source of auxiliary voltage  $U_{01}$ , while resistors 11 are connected to the feeder voltage  $+U_{00}$ .



## Analog-Digital Convertor

Invention title: Analog-digital convertor.

Inventors: Marek Smolenski and Krzysztof Gorniak.

Invention owner: Microwave Equipment Factory Wilmer in Warsaw.

The object of this invention is a convertor of a simple structure in which the accuracy of conversion is not affected by the stability of the multivibrator frequency.

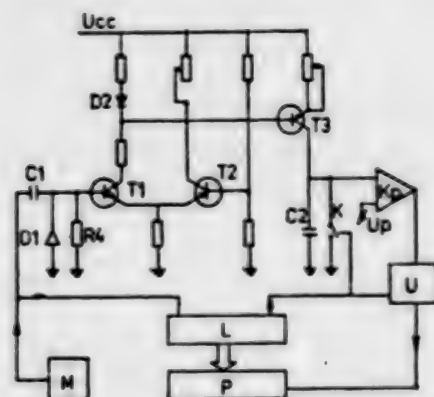


Figure 3.

The convertor (see Fig. 3) comprises a multivibrator M connected with the counter L and memory P, and, also, through the separator system C1, D1 and R1 with the thermally stabilized difference amplifier with transistors T1 and T2. The collector of transistor T1 is connected to the transistor T3, which constitutes the key source of current. Its collector is connected with the capacitor C2, key K and comparator K<sub>p</sub>, to which the converted voltage U<sub>p</sub> is led. The comparator output is connected with the univibrator U, coupled with the counter and the memory.

9922

CSO: 5500/3031

POLAND

## ADVANCES IN FIBER OPTIC COMMUNICATIONS SYSTEMS

Warsaw PRZEGLAD TELEKOMUNIKACYJNY in Polish No 2, Feb 85 pp 42-43

[Article: "Current Results and Future Prospects for the Research and Development of Polish Light Guide Systems"]

[Excerpts] Accomplishments Achieved Until Now and Future Plans in the Research and Development of Fiber-Optic Systems in Poland

Work on the applications of optic telecommunications systems was started in Poland in the early 1970's at Communications Institute [IL], Military Technical Academy [WAT] and the Telecommunications Institute of Warsaw Polytechnic [ITPW]. In 1975, attempts were initiated to create a light guide line at the Institute of Physical Chemistry of the Marie Curie-Skłodowska University [UMCS] in Lublin. As a result of these tests, in 1978 optical fibers were produced with the damping rate of about 5 dB/km for wavelengths 0.9  $\mu\text{m}$ . Using the experimental cable produced at the UMCS laboratory and receiving-transmitting devices developed by ITPW, the first Polish fiber-optic communication line was installed in Lublin in 1979. It was 3 km long and had a transmission capacity of 1.5 Mb/s.

In 1980-82, UMCS developed a new generation of gradient optic fiber, with a lower damping rate and designed modernized types of cable. The modernized units were tested in Lodz on a communications line 5.1 km long with a capacity of 2 Mb/s.

The results in fiber optic telecommunications can be summarized as follows.

- In the development of optic fibers and cables

- the technology has been created and, on a laboratory scale, gradient optic fibers have been produced operating in the range of 0.85  $\mu\text{m}$  (UMCS, Lublin);
- on a laboratory scale, fiber optic cable of modern design has been created (UMCS, Lublin);
- the technology of production and equipment for connection of optic fibers has been developed (IL, Warsaw, and OLPiT, Lublin);
- on a laboratory scale, various fiber-optic components have been designed such as splitters, connectors and dampers (IL, Warsaw);

--measurement instruments and tools have been developed (IL, Warsaw; ITPW, Warsaw; OLPiT, Lublin).

● In optical electronics, models of receivers and transmitters for digital systems TCK 24, TCK 30 and TCK 120 have been designed. The models have been developed in alternative versions by IT-PW and DOPiT (Lublin) and IL (Warsaw).

● In the area of experimental fiber optic lines, the following projects should be mentioned:

--in 1979 in Lublin, interexchange fiber optic line with capacity of 1.5 Mb/s and a length of 3 km was installed;

--in 1982, an experimental interexchange fiber optic line was installed by OLPiT (Lublin) in Lodz. It is 5.1 km long. The line is used by 2 Mb/s systems, created by IT-PW and DOPiT (Lublin), and an 8 Mb/s system developed by IL (Warsaw).

A key factor in the future development of fiber optics will be the Center of Optical Telecommunications which opened in late 1983 in Lublin. The objectives of the center include the industrial-scale production of fiber optics and cable, as well as related operational equipment.

Plans for 1985-86 include: producing in 1984 10-30 km of fiber optic cable of an improved design, although it will not yet be brought to the prototype stage; prototype cables will be produced starting from 1985, 100 km in 1985 and 120 km in 1986. Prototype cables will consist of 4-12 fibers with improved coating, making it possible to place them in a common sheath. The fibers will be adapted for operation in optical windows I and II.

The work on the receiving and transmitting equipment for 2 and 8 Mb/s systems and the plans for the cable production will make it possible to bring into operation in the coming years both these systems in interexchange networks. The Communications Institute has prepared a manual, "Principles of Introduction of Lightguide Technology for the Polish Telecommunication Network in 1984-1986." The document describes the operations to be undertaken to introduce this technology, ensuring an adequate compliance with engineering and operational aspects.

The document specifies that the first stage in this endeavor will be operational experimentation, which will provide the basis for subsequent development of fiber optic technology, and evaluation of the systems on the scale of the industry. The study suggests concentrating experimental work on various types of applications in the interexchange network in Lodz.

Plans for 1986-90 call for developing before 1986 a technology of single-mode fibers which will make it possible to develop transmission systems with binary capacities of more than 140 Mb/s. In subsequent years, the single-mode fibers will be improved, including the reduction of their damping ratio and dispersion.

There are also plans for research and development work on reinforced and mixed types of cable to be developed by telecommunications cable factory in Ozarow. For enlarging the production of fiber optic cable, the Center of Optic Telecommunications Technology in Lublin will be expanded and at the same time the production would be moved to the cable factory in Ozarow in the late 1980's.

To ensure that the material supplies for the manufacturing of cable will be independent of imports from abroad, efforts will be made to produce the molds at the glass factory in Ozarow.

The research on lightguide systems based on Polish fibers and cables starting in 1985 will be concentrated at Communications Institute.

On the basis of previous experiments, a family of fiber-optic systems with capacities of 2, 8, 34 and 140 Mb/s will be developed, with the appropriate surveillance systems and regenerators. The systems of 2-8 and 34 Mb/s will be designed in two versions to operate in optical windows I and II and adapted to multimodal transmission. The cable family developed at IL will be manufactured by PZT (Warsaw) and WZT TELETRA factories (Poznan). Production should begin in 1988-89. The 140 Mb/s system will be adapted for single and multimodal transmission in optical windows II or III. Production will begin in 1990.

It should be emphasized that the success of the development and production of these fiber optic systems will be predicated on the availability of digital converters.

An important condition for the efficient production of fiber-optic systems will be the availability of a sufficient number of optical electronic elements. The research, development and production base in Poland for this purpose is provided by CEMI. The small-scale production of LED diodes, lasers and photodiodes for the fiber optic systems mentioned above are planned for 1987-88.

#### Projected Applications in Polish Telecommunications System

The developments in optical telecommunications described above make it possible to introduce fiber-optic transmission systems as alternatives in all areas of existing telecommunications networks. In other countries, manufacturers produce fiber-optic systems with capacities adapted to the established hierarchy of transmission speeds. The development of fiber-optic technology in Poland described above makes it possible to outline a program for introducing the fiber-optic systems into the national communication network. The time schedule of the introduction of these systems will depend, on the one hand, on the availability of equipment and fiber-optic cables, and the necessary converters to be produced by Polish factories, and, on the other, on the pace of development of the national communications system, especially the rate of its digitization.

In view of these aspects, it is projected that in 1986-90 fiber-optic systems will be introduced initially into interexchange networks of large urban centers using E10 exchanges, and subsequently into intraprovincial centers. In these areas, multimodal transmission systems will be used. In interexchange networks, mostly systems operating in optical window I will be used, while in interprovincial networks systems operating in optical window II will be functional. The required binary transmission capacity of the systems will not exceed 34 Mb/s.

In the early 1990's, fiber-optic systems will be introduced into long-range interprovincial communications. These will be mostly 140 Mb/s systems working in a unimodular regime.

The programs for the development of a telecommunications network in Poland emphasize the intensified introduction of telephone lines in rural areas. Fiber-optic systems with capacities of 2 and 8 Mb/s could be used for links between rural exchanges and superior stations provided that they will be competitive with the existing conventional solutions.

Until 1995, large-scale use for lines of individual subscribers are not foreseen. This does not rule out, however, research in this area and the eventual development of an experimental transmission network with integration of services based on fiber optics.

9922

CSO: 5500/28



INTER-AMERICAN AFFAIRS

SANGUINETTI, SARNEY TO MEET; ECONOMY, INFORMATICS ON AGENDA

Montevideo EL PAIS in Spanish 2 Jul 85 p 8

[Text] Rio de Janeiro, ANSA. The new Brazilian foreign policy strategists place a high priority on relations with Argentina and Uruguay whom they consider natural allies in the solution of the financial problems of their respective countries. "We are in an exceptional period of understanding, and the political and economic transformations which we are experiencing lead us to common action and not rivalry," said Olavo Setubal, Brazilian minister of Foreign Relations. He recently had contact with the Uruguayan Foreign Minister Enrique Iglesias. He said, "At our meetings we are stressing the need for joint action at various economic and political levels."

Olavo Setubal, former president of the Itau Bank (the second largest Brazilian banking institution) before taking over the post of foreign affairs minister, has been delineating courses of action aimed at reducing the size of the foreign debt. Although negotiations with the lending banks is the responsibility of the minister of finance, the foreign ministry takes the main initiatives linking the payment of the foreign debt with the obtainment of a favorable balance of trade.

This pragmatic policy had been already drawn up when he took over as head of the Foreign Ministry, to which he was appointed by deceased President Tancredo Neves. Setubal said, "The fulfillment of our foreign debt obligations presupposes our having a significant favorable balance of trade."

Under the new diplomatic concept of the Foreign Ministry, the prescription for solving our financial problems will be economic expansion. Within that framework, Brazil advocates intensification of trade relations in every direction, especially with our neighbors of the Southern Cone.

The official visit which President Jose Sarney will make to Uruguay on 12, 13 and 14 August is part of that strategy of strengthening the political, economic and cultural bonds between our two countries.

The Uruguay and Brazilian Foreign Ministries are preparing a tentative agenda of subjects which will be discussed by Presidents Julio Maria Sanguinetti and Jose Sarney during the first foreign trip by the Brazilian president.

Sources inside the Foreign Ministry assert that informatics is one of the most important subjects to be discussed since Uruguay has shown interest in acquiring Brazilian computers under the current scientific and technological agreement. Uruguay has a priority interest in studying with Brazil matters related to agriculture and livestock production in the light of mechanisms which will allow greater operational flexibility between our two countries.

9204  
CSO: 3348/846

ARGENTINA

TELEPHONE NETWORK EXPANSION PLANS TO BECOME REALITY

Buenos Aires CLARIN in Spanish 21 Jul 85 p 19

[Article by Antonio Ambrosini]

[Text] Next Wednesday the minister of public works and services, Roberto Tomasini, accompanied by the new head of the department of communications, Roberto Zubieta, will announce what official sources say should be the initial stage of the economic plan's reactivation phase: the installation of 1 million telephone lines. The officials are counting on the impact of this announcement--combined with others still being prepared--to help to counter the economy's recent performance: a sharp decline in total demand and a noticeable slump in industrial activity.

Telecommunications Plan

The expansion of the telephone system is part of a general telecommunications plan covering 25 years. The CONITE [National Computers and Telecommunications Commission] has been working on this plan for months. This commission is headed by the new secretary of communications. The general outlines of this project will be made public by the end of this month, and by mid-August the industrial electronics program is to be put into operation.

The telephone plan calls for the installation of 1 million telephone lines, mostly within the metropolitan area, within a maximum period of 5 years.

At present, explicit telephone demand is 1.3 million, but it is estimated that implicit demand (that is, people who would like to have telephone service, but who don't bother to apply for it because of the practical impossibility of obtaining service) would bring this figure to nearly 3 million lines.

Statistics

During the 5-year period industrial investments are expected to amount to the equivalent of \$1.5 billion. The total construction cost of these projects should come to \$500 million, of which between 70 and 80 percent is expected

to be financed exclusively by the domestic market. Imports are expected to cost about \$90 million. To date, ENTEL [National Telecommunications Company] --which will be responsible for executing the expansion plan--has invested more than \$350 million in projects already begun. In the new phase, the projects will be handled by private companies--as part of "the privatization of growth"--and once they have been completed, they will be handled by ENTEL.

Financing for the plan will be provided by investments made by the users through financing agencies, which may be banks or special associations created for this purpose. These financing agencies will administer the funds of the parties involved. Various types of plans are being arranged, based on the applicant's ability to pay, which should lead to an average price per line of about \$1,500.

The business community will also be encouraged to participate in financing the construction plans, by operating with credits from suppliers.

#### Methodology

The applicant for telephone service will subscribe to the plan selected in a bank designated by ENTEL, and may choose from a minimum term of 12 monthly payments, or up to a maximum of 60 monthly installments (covering a 5-year period).

According to the tentative schedule that ENTEL is to present, the national territory will be divided into five regions. In the Center section, there are plans to install 15,000 lines by the end of this year and 100,000 next year (this includes essentially the Federal Capital and Greater Buenos Aires); in the Center East, the plans call for 1,500 and 14,500 lines; in the Coastal region, 3,500 and 14,500; in the Northwest, 3,500 and 19,200; and finally, in the Southern region, by December 1986 1,800 telephone lines are to be installed. This comes to a total of about 173,500 lines for the 18 months of the plan's first phase.

Officials expect that with this expansion of our telephone service, Argentina will move from its present ratio of 86 telephones to 113 telephones for each 1,000 inhabitants by 1990. The plan also calls for 30,000 public telephones to be installed during the current program, primarily in areas now lacking them. One of the plan's objectives is a significant industrial recovery, since between 70 and 80 percent of the equipment can be manufactured in Argentina.

If the program completes the work schedule on time, the first exchange should be ready for service on about 20 December (in the case of semifinished exchanges, in response to demand already recorded), and the first exchange financed by the future users should begin service by 30 June 1986.

7679

CSO: 5500/2100

ARGENTINA

COMMUNICATIONS SECRETARY COMMENTS ON NETWORK EXPANSION

Buenos Aires LA PRENSA in Spanish 25 Jul 85 p 5

[Text] The secretary of communications at the ministry of public works and services, the engineer Roberto Zubieta, held a press conference at the SECOM [Department of Communications] headquarters, Sarmiento 151, Buenos Aires, in which he announced the startup of the "Executive Planning Group for the installation of 1 million telephone lines throughout Argentina."

Present at this meeting were the undersecretary for broadcasting, Juan Ciminari; the undersecretary for telecommunications, Horacio Carnelli; the general administrator of ENTEL [National Telecommunications Company], Manuel Garcia; the deputy administrator, Raul Otero; and the head of the planning and technological management working group, Luis Di Benedetto, as well as representatives of the broadcast and written media.

Secretary Zubieta reported that "the Executive Planning Group is starting to work today. The group is chaired by myself, and its members are from the department of communications and from ENTEL, along with representatives of the major supplier firms that will take part in the plan."

The secretary of communications also denied that ENTEL would become a private company, and said that the area distribution plan for the 1 million telephone lines to be installed within a 5-year period will be announced "within 2 weeks or a month at the latest."

The official said that "major segments of the population will have access to the new plan." He also noted that "the installation of a telephone line now costs 170 australes at the ordinary rate, and 510 australes if the order is placed as an urgent request."

The secretary of communications said that "the purpose of this press conference is to maintain a fluid link between both parties in order to provide a system for direct consultation on the progress of the plan. For this reason," noted Zubieta, "we will meet every 2 weeks to report to the press on the progress of this program."



Mr Zubieta said that, through this project, the private sector will for the first time be playing an active and leading role in its implementation. He also noted that "the beneficiaries or the future users will be kept constantly informed about the plan's status."

Later Mr Zubieta spoke about the formation of a Control Group for the plan, composed of ENTEL representatives, who will monitor all aspects of it.

Concerning the population's access to the telephone installation plan, the secretary said that "the users will pay a fee to state and private banks, and ENTEL will transfer funds from these savings accounts to pay its suppliers for their materials." He refused to cite the total cost and the number of payments which the users will have to pay to enroll in the plan, noting that "this information will be announced later."

Secretary Zubieta reported that the plan also includes improvements in existing services; the installation of 30,000 public telephones in areas lacking them; an increase in rural telephone service to 30,000 new subscribers; and the installation of 75,000 connection terminals with the data network.

Within 5 years, this project will mobilize approximately 1 billion australes, generating 8,000 new jobs in the supply sector.

A press statement released by the department of communications reports that "by the end of the plan, the telephones per inhabitants ratio will have increased from 8.6 to 12 telephones for each 100 inhabitants. It further noted that "these telephones will be provided through the savings of the users themselves, channeled through both state and private banks."

In closing, Mr Zubieta emphasized that "in this way infrastructure projects that are essential for our national development will be financed." He repeated that "these measures are part of the recovery policy our national government has initiated."

7679

CSO: 5500/2100

BRAZIL

MARKET RESERVE ON INFORMATICS NOT TO CHANGE, BE EXTENDED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 28 Jul 85 p 46

[Text] Brasilia--The law on informatics will not be changed very soon; but also, no other market reserve arrangement will be adopted in the new sectors of state of the art technology which the Brazilian economy is beginning to explore, such as genetic engineering. Underdeveloped areas like the north and northeast will not receive extra tax incentives for the creation of informatics centers, but a decentralization of resources will result from incentives to create scientific centers at the universities to attract high tech industries to a given vicinity.

These are some of the aspects of the technological policy of the new republic, and, if it were up to Minister of Science and Technology Renato Archer, "the country's economic development will have to be imbedded in the innovations of private national initiative with government protection of their projects, the support of the state for scientific research and international technological cooperation." In an exclusive interview with O ESTADO DE SAO PAULO, Renato Archer, 63 years of age, reveals how he plans to carry out the mission which he received from Tancredo Neves--namely, to try by the turn of the century to bring Brazil to the point where it will keep pace with the more developed countries in this third great technological revolution of humanity, that of "informatics," after the "agricultural and industrial" revolutions.

"Brazil now has a clearcut path to follow: it is a capitalist country with a market economy, and it is totally committed to the decision to be a social democracy. Brazil will be able to strengthen and broaden this path as it improves the living conditions of its people. As a government, our activity is to enrich the country, and the best way to do this is to reduce the level of technological dependence on nations which are more developed without damaging our ongoing international cooperation with countries which can provide us with technology," the minister asserts.

Revealing some of the basic principles of the policy which he will establish for this sector, Archer observes that there are sectors which are exhorting the adoption of the market reserve arrangement, as occurred in the case of informatics, as a means of decreasing the technological distance in other high tech areas, such as biotechnology, new material and alternate sources of energy.

"When I arrived, the informatics law had already been devised by National Congress, almost unanimously. Now it is up to me to support it, for I believe that it has not yet been sufficiently tested. I have no intention of proposing Brazil's adoption of any other market reserve arrangement. This is a defensive act of countries interested in developing their own technologies in certain sectors and for a specific time. But I believe that universal science does not fall within precise frontiers."

[Question] Just 2 weeks ago, the ministry's Secretariat of Biotechnology went into operation. What are the plans for the country's development in that sector?

[Answer] Also, just 2 weeks ago, we arranged the signing of an agreement between two private Brazilian companies, Biobras and Bioferm, and two Argentine companies, Polychaco and Sidus, for the research and subsequent manufacture of insulin and the hormone, Interferon, through genetic engineering. From the way this was done and in view of the intent to supply Latin America with biotechnical products, this transaction is of major importance. We are still going to establish biotechnological policy, but, following the example of that agreement, we plan to arrange associations between private national firms and countries in similar stages of development for research in state of the art technologies and action in the Latin American market.

[Question] What role is the ministry contemplating with regard to the state and private initiative in the country's attempt to reduce our economic and technological dependence?

[Answer] The ideal development model is that of Japan where there are close ties between the university which researches new techniques and the company which finances applied research and makes use of the results. That model is being followed with great success in Campinas where, in addition to UNICAMP [Campinas State University], TELEBRAS [Brazilian Telecommunications, Inc] and the Special Secretariat of Informatics maintain their research centers. The arrangement between company and university in Campinas is now making it possible for new local companies to participate in the international market. It is that model which we would like to establish as the standard in the country's consolidated development, with industries growing up around universities and research centers. The state's role in that process is to protect the private national companies in which way is necessary and grant the necessary funds for scientific research. President Sarney favors allocating from 2.5 to 3.0 percent of the GDP to research, as done by the more developed countries. But Brazil is presently investing only 0.6 percent of its GDP in that area.

[Question] Is it not possible that this model might lead to a greater concentration of the country's industries and resources in the more developed states? For example, in the case of informatics, some parliamentarians from the north-east and north make that accusation and demand, as an alternative, that the Federal Government grant tax incentives for the creation of various informatics centers.

[Answer] The informatics law prohibits industrial concentration and, for this reason, I did not accept the probable concentration of that sector in Manaus. That is to say, when SUFRAMA (Superintendency of the Manaus Free Trade Zone) wanted to extend its tax incentives.

BRAZIL

BRIEFS

RADIO STATION REOPENS--Salvador--The old Radio Cultura of Faria de Santana was reopened on 26 July under the new name of Radiofifusao Cultura Ltda. The station was closed 10 years ago after broadcasting an interview in which Deputy Francisco Pinto severely criticized Chilean President General Augusto Pinochet, who was then visiting Brazil. [Text] [Rio de Janeiro O GLOBO in Portuguese 27 Jul 85 p 6 PY]

CSO: 5500/2102

ECUADOR

IETEL OUTLINES LONG-RANGE OBJECTIVES

Madrid AHCET in Spanish No 11 [1985] pp 4-7

[Report by Angel Lopez of the Ecuadorean Telecommunications Institute (IETEL)]

[Text] This report was made by IETEL at the Fifth Andean Telecommunications Conference held in Cochabamba (Bolivia) last February. In it IETEL's long-range problems and objectives are described.

Introduction

A country's chief development problems are intimately linked with development of the basic services and installations of the telecommunications infrastructure. At the present time Ecuador shows a serious shortage of telecommunications services basically due to the fact that there has been no adequate planning system in this sector.

IETEL's need for effecting integral planning in order to achieve the harmonious development of the services makes the elaboration of a long-range strategic plan indispensable.

This plan will have to cover a period of 20 years so that it may serve as a basis for the objectives, policies and goals of medium and short-term plans.

Strategic planning will define the best way of realizing long-term objectives and it must be characterized by the completion of long-term market studies, the elaboration of 5-year plans, the proper use of funding sources and wise management by those responsible for operations.

Obviously, planning operations will be closely related to the technological innovations that constitute the physical foundation of telecommunications and which have as a result given rise to the rapid appearance of new services.

The evolution of satellite communications, for example, and the growing utilization of geostatic satellites and small receiving stations makes it technically feasible and economically viable to enable telecommunications services to reach the most remote areas as well.



In connection with this, one of the most important decisions in the history of Ecuadorean telecommunications is without a doubt the one adopted by IETEL, aimed at digitalizing its telecommunications networks as well as instituting studies for the installation of a domestic satellite system to serve some areas of the country.

As for new services, IETEL is aware of the fact that needs for the transmission of data in Ecuador are great and urgently require the installation of a specialized network. It will also be necessary to institute studies for the implementation of mobile telephone services and telex.

In short, planning for the year 2000 will fall within the framework of the long-term plan that IETEL must implement and for which it will take into account the points referred to above and others that will be discussed in more detail in what follows.

#### 1. Expansion of Telecommunications Networks to Meet the Demand

Expansion of the telecommunications networks in Ecuador will naturally follow the trend of population growth. The population projected for the year 2000 will be approximately 11.5 million inhabitants, 68 percent of whom will correspond to the urban population and the remaining 32 percent to the rural population.

If telephone density changes in accordance with the chart of Figure 1, there will be a telephone density of 15 by the year 2000, corresponding to 1.725 million primary telephone installations.

To achieve this objective, they will have to install about 97,000 lines a year.

As can be inferred from the distribution of the population, the greatest demands will be made on the urban telephone network: Several medium and large-capacity telephone exchanges will be installed, which will serve as many as a half a million subscribers in the larger cities having sections with high density or population concentrations and business establishments like the cities of Quito and Guayaquil. Through the important decision made by IETEL aimed at digitalizing the telecommunications network, the new telephone exchanges will be of the digital type. A plan for reinstating exchanges of the AGF [expansion unknown] type will be worked out and subscribers to some existing analogue computer exchanges will be relocated to the new exchanges in order to relieve congestion at them.

Equipment and materials for the external plant (conventional cables and optical fibers) will also be in great demand because they are necessary to the development and expansion of the big urban, suburban and interurban networks that will be required to link the exchanges referred to. PCM [expansion unknown] and optical fiber transmission equipment will preferentially be adopted.

As for transmission equipment for the long-distance network, whether it consists of radio and multiplex equipment, it will involve a computer technology

that will permit the creation of new microwave channels or the extension of existing trunk lines.

The increase in national traffic will result in a large expansion of the international traffic, forcing them to install a new international exchange as well as a second earth station.

To finally resolve the shortage of telecommunications services in some parts of the country, like the province of Galapagos and Eastern Ecuador, they will have to install a domestic satellite system, utilizing two domestic stations in the above-mentioned areas, which stations will be hooked up with the existing station in Quito.

The demand for telex and telegraph service will be met up until the year 2000 once the digital switching exchanges that have been contracted for are installed. Exchanges equipped with stored program control and an initial capacity of 3,100 telex/gentex subscribers, 900 trunk-line and 50 datex subscribers will be installed in the cities of Quito and Guayaquil.

## 2. Special Attention to the Layout and Optimization of the Telephone Network

The layout of a telephone network consists of the design of the structure of the network and the determination of the equipment required in each part of it to meet the specified demand with a given quality of service.

There is a practically unlimited number of possible solutions for any layout problem as concerns both the structure of the network and the volume of telephone equipment it is appropriate to put into service in each one of its parts. Even if all these solutions achieve the layout objectives per se, that is, they meet the demand with a given quality of service, it is still possible to differentiate them according to other criteria like, for example, the cost of the network.

Optimization of the networks will constitute part of the planning activity, having as its basic purpose that of serving as a basis for the preparation of the network development plan.

Ecuadorian telephone network equipment is at present of the analogue computer type; the introduction of digital switching and progress toward an integrated digital network (switching and transmission) are important factors to be considered in planning, resorting to specific models and methods of optimization that enable us to take into consideration the special characteristics of the digital equipment, among which it is appropriate to cite the following: modularity, the cost of any analogue-digital conversion, the factors involved in costs and differences in capacities from the technical point of view. All these characteristics will have a considerable influence on the structure of a mixed network in terms of the introduction of digital switchboards as well as the layout and optimization of these structures.

The models to be employed for the optimization of the telephone network will be subject to two important conditions:

a) Flexibility:

By flexibility in the solution of a network planning problem, we mean here the solution's ability to be adjusted or adapted to new conditions and requirements. In principle this flexibility has two facets: one technical, that is, the purely technical ability to adapt, and the other economic, determined by the expenses such adaptation may incur.

b) Quality of Service:

With respect to this, great importance will be assigned to the degree of service from the point of view of traffic and to the reliability and dependability of the network. The planning of the telephone network will have to be a continuous process and, while manual procedures permit the realizations of those plans that are necessary for taking into account changes of circumstances, the chances of obtaining an evaluation and continuous development of network planning are greater with the aid of a computer.

The scope of computer processes and their applications in the different telephone network planning activities are undergoing rapid expansion, in the first place because they save manpower in complex and repetitive tasks.

Moreover, they have the advantage of their speed of operation, which will make it possible to investigate a greater number of possibilities and examine the effects of variations of times and dates.

Since the work of developing computer operation may result in large demands on the economy and specialized manpower, for which a satisfactory return is expected, it will be necessary to decide whether we must design and develop our own programs. As an alternative to the development of computer programs within IETEL while the necessary experience is being acquired, the policy of renting computer programs or contracting for the services of specialized personnel would be adopted.

### 3. Creation of a Specialized Data Network

The advent of data processing in the field of telecommunications has induced many countries to become interested in the establishment of public data networks. One of the first ways of focusing on the designing of these networks consisted of adapting the scattered analogue telephone and telegraph installations to the transmission of data.

While these installations continue to be widely used, various factors, among them those of maximally and with the greatest possible efficiency making use of transmission bases and the development of digital technology for transmission and switching, have these past few years led to the establishment of public networks designed especially for the transmission of data.

IETEL is going to conduct a long-term planning program in this field for the purpose of establishing the initial elements of a public transmission network with switching by packages basically using numerical transmission and digital exchanges.

The logical process of planning will continue with the conducting of studies of demand, preliminary selection of the system's technology and design and determination of the periods of time to be devoted to implementation, preparation of specifications, bidding and construction contracts.

#### 4. Creation of New Services

##### a) Introduction of an Automatic Public Mobile Telephone System:

The employment of mobile radiocommunications is increasing rapidly throughout the world. Current users are freight, taxicab and industrial companies, lumber companies and public administration agencies. Most of the automatic systems are at present designed for business firms and their internal needs. The public mobile telephone services that cover an entire country, which at present exist in several countries, are manual; that is, they require the assistance of an operator for each call.

During the past few years development of an automatic mobile telephone system that covers an entire country for its connection with the public network has been possible thanks to rapid technological developments in the field of radio such as:

Digital synthesis of frequencies, which makes it possible to determine the frequencies of hundreds of channels with a single crystal.

LSI circuits and microcomputers, which with reasonable volume and price make it possible to execute complex signaling and control functions with mobile radio equipment.

IETEL will make use of technological advances and the structure of the network and the frequency schedule to be used will be determined in the plan to be drawn up for this service.

At the present time IETEL has a small-capacity system which is operating on an experimental basis and which will enable them to better conduct feasibility studies for a national-scale project.

##### b) Digital Network of Integrated Services

It is necessary to adopt a strategy aimed at obtaining an integrated services network in the future.

The increase in the number of independent telecommunications services networks has resulted in the faulty use of the facilities they provide, aggravating the situation with difficulties in predicting the demand for new services. It is therefore necessary to construct a network in the future that will be more flexible in terms of the adoption of new services and fluctuation in the demand for them.

IETEL will have to regard the digital network of integrated services as the final phase in the development of the Ecuadorean network.



A first important step to be taken is the introduction of digital technology into the existing network by contracting for 73,500 local exchange telephone lines equipped with this technology, installing national traffic exchanges for the cities of Quito, Guayaquil and Cuenca for an approximate total of 18,000 lines, installing approximately 19,000 tandem exchange lines for the cities of Quito and Guayaquil and installing interexchange networks using optical fiber transmission equipment and cable PCM equipment.

The chief advantages for the operation of a short-term network resulting from this decision are:

**Reduction of the cost of equipment:** It has been theoretically and practically demonstrated that the cost of production and installation of a piece of equipment (switchboard or transmission) using digital techniques is lower than the cost of a similar piece of equipment in an analogue setup.

The principal reason for the lower cost is that the very principle of the digital technique permits greater use of integrated components.

This tendency is going to become more accentuated in the years to come with the constant lowering of the price of electronic components.

**Reduction in the costs of public works construction, energy, etc.:** As another consequence of the use of more and more integrated components, the volume and wearing out of equipment is gradually being reduced, resulting in a decrease in investment costs for buildings, energy equipment, etc.

Moreover, the simultaneous use of digital switching and transmission makes it possible to considerably reduce the overall use of the network and greater flexibility is obtained in the design (engineering) and planning of the network.

**Reduction in operating cost:** While the introduction of electronic switching permits a reduction in operating costs, digital switching makes possible a supplementary reduction due to the greater reliability of the equipment and a better opportunity to centralize operations.

**Improvement in quality of service:** This is manifested in several ways: better acoustics, elimination of switching noises caused by mechanical components in the automatic switchboards and reduction of the time it takes to place calls.

As for long-term network operation, digital techniques will permit integration of the different services: telephony, transmission of data, texts and designs (facsimile, teletex) through the same network up to and including subscribers' lines.

Integration will reduce the operating cost of now separate networks and improve their utilization.

It will also permit modernization of the telecommunications network and it will in particular result in the easier introduction of modern signaling systems



(signaling through a common channel like the CCITT [International Telephone and Telegraph Consultative Committee] No 7 system) that will permit better utilization of the circuits and a reduction in waiting time after dialing.

Ecuador will be eagerly awaiting the advances made by other organizations in adopting an opportune and optimal strategy for the design of an integrated services digital network.

11,466

CSO: 5500/2093

VENEZUELA

BRIEFS

**NEW TELECOMMUNICATIONS SYSTEM**—Porlamar, 14 July (special)—Venezuela will be on a par with the most highly developed countries in the communications field through the procurement of 1 million telephone lines based on digital electronic technology, it was announced by Jose Luis Espinel, president of CANTV (National Telephone Company of Venezuela). The statement was made by Espinel during the opening of the convention of governors of the northern and southern regions which is being held in this city. The CANTV president said that bids will start to come in for the equipment involved next month as part of the competitive bidding process launched by the company; this undertaking will increase the existing line network starting during the early months of 1987. According to Espinel, the new telecommunications system will improve service quality and therefore will also help raise the living standard of the Venezuelans. [Text] [Caracas EL UNIVERSAL in Spanish 15 Jul 85 p 2-22] 5058

CSO: 5500/2094

REGIONAL AFFAIRS

**FIRST ARABSAT TV BROADCAST REPORTED**

**East Burnham ARABIA: THE ISLAMIC WORLD REVIEW in English Aug 85 p 75**

[Text]

ARABSAT's first TV broadcast was successfully completed on June 24, 1985 when a two-way TV link was established between the Arabsat earth station in Djibouti and the Arabsat control station in Tunis. The inauguration ceremony was attended by the president of the Republic of Djibouti and the minister for posts and telecommunications; consulting engineers for the project are the international Ewbank Preece consulting group.

Comprising six satellite earth stations in five countries — two in Mauritania and one each in Djibouti, Somalia, South Yemen and Sudan — this part of the Arabsat project will link participating countries via the Arabsat satellite communications network. The 13-metre dish stations will provide national and international telephone services, national and regional TV broadcasts and telex and other data transmission facilities. Ewbank Preece's services include validation of system design, quality assurance for all radio and telecommunications equipment, supervision of installation and system commissioning.

Ewbank Preece will also supervise associated works in Mauritania to provide a local network and telephone switching capability for 1300 lines at the main port of Nouadhibou. Additional facilities to be engineered by Ewbank Preece at each earth station include civil works for antenna foundations, constant and regulated power supplies and diesel alternators. Ewbank Preece has also been contracted to monitor maintenance at four of the stations when installation work is completed.

INDIA

#### INSAT-1C READY FOR SCHEDULED MID-1986 LAUNCH

Bombay THE TIMES OF INDIA in English 11 Jul 85 p 6

[Text] BANGALORE, July 10--The third Indian satellite, INSAT-1C, was successfully integrated in the last week of June for its scheduled launch in the middle of next year.

"Everything is going on fine as per schedule and we have not encountered any problem," Mr. P. P. Kale, project director of INSAT, said. He returned here after a visit to the United States, where the satellite is being built.

Now that the satellite has been integrated, it will be put through environmental and acoustic tests preparatory to its launch campaign. Certain improvements have been made in INSAT-1C to avoid the problems faced by its predecessor, INSAT-1B, like deployment of solar array. New design features have been incorporated to overcome the difficulties experienced in the orbit-raising and station acquisition phase of INSAT-1B.

INSAT-1C, being built by the Ford aerospace and communications corporation at its space facility in Palo Alto, is to be the on-orbit spare for INSAT-1B, which will be completing two years in another 50 days.

INSAT-1C will be functionally identical to INSAT-1B and INSAT-1A, which had an abortive life in space. In fact, INSAT-1C became necessary following the failure of INSAT-1A. It will be launched by the US space shuttle, which will also carry an Indian payload scientist on board.

INSAT-1C will mark the completion of foreign procured satellites for the Indian national satellite system and the commencement of the use of indigenous spacecraft. It will be followed by the INSAT-II second generation spacecraft, which will eventually be launched by the geo-stationary launch vehicle (GSLV from India).

CBO: 5550/0140

INDIA

SPACE OFFICIAL TELLS PRESS OF SATELLITE PLANS

Madras THE HINDU in English 17 Jul 85 p 9

[Text]

TRIVANDRUM, July 16.  
The launching of the five-stage Augmented Satellite Launch Vehicle (ASLV), scheduled for October, may have to be postponed to January-February 1986.

Prof. U. R. Rao, Chairman of the Space Commission, told a press conference here today: "As of now, meeting the October deadline seems difficult. Since October-November is the cyclone season on the East Coast, missing the October deadline will mean that the launch can go ahead only early next year. If postponement is necessary, the launch may take place in January 1986".

Every facility at Sriharikota, damaged by the cyclone last year, had now been repaired, he added. The successful development of the SLV represented "quantum jump" from the SLV series. Many new technologies had been developed, and these would be tested during the ASLV series and could then be used for the Polar Satellite Launch Vehicle (PSLV), scheduled for 1989 (the PSLV would put a 1,000 kg satellite into a 900 km sun-synchronous orbit).

Tests in France: The liquid propellant engine developed at the Vikram Sarabhai Space Centre here was now undergoing tests in France, since the ISRO's own test complex at Mahendragiri (in Kanyakumari district in Tamil Nadu) would be ready only by the end of this year. The liquid engine had completed successfully the first test (there are two more to be done), Prof. Rao said.

Referring to the Indo-U.S. joint space mission scheduled for July next year, which would put the Insat I-C satellite into orbit, Prof. Rao said a payload specialist from India would help the NASA astronauts to deploy the satellite.

By the end of this month, the names of the two Indians selected for the mission would be announced. These two would begin training next month; they would get some training in India itself and the final 16 weeks in the U.S.

"Certain premature announcements" about the two persons selected had appeared in the press. These reports did not have the approval of the Space Commission, Prof. Rao said.



INDIA

# PANEL TOLD OF PROGRESS IN SATELLITE PROGRAM

Calcutta THE STATESMAN in English 22 Jul 85 p 9

[Text]

NEW DELHI, July 21.—An Indian payload specialist is scheduled to fly with INSAT-IC on the U.S. space shuttle flight scheduled for July next year, members of the Parliamentary Consultative Committee attached to various scientific departments were told here recently.

The successful launching of INSAT-IC and its operation would complete the INSAT-I space programme, comprising two identical multipurpose satellites, one as a primary satellite and the other an active spare.

The members were told that work on INSAT-IC was progressing satisfactorily and its delivery was projected ahead of the stipulated date of January 31, 1985.

Addressing the members, the Prime Minister, who holds charge of the various scientific departments, said that the space programmes were being monitored rigidly and were moving fast towards self-reliance. The programmes were according to the time schedule and, in some cases well ahead, he added.

INSAT-II is designed to cater to telecommunication and TV services requirements in the 1990s. It would be built in India and launched by an Indian geostationary launcher, GSLV. The INSAT-II satellites would be preceded by an INSAT-II test spacecraft.

The members were told that a new earth station was scheduled to be commissioned at Kulu by the end of this year. A new station at Vijapur (M.P.), 18-low-cost terminals in various parts of the country and 10 additional emergency communication transportable terminals would be commissioned during 1986. Another set of 25 earth stations was in the final stage of consideration. In addition, the main earth stations at Bombay, Calcutta, Delhi and Madras were in the final stage of augmentation for deriving substantial telecommunication capacity (about 1,940 two-way circuits) from INSAT-IC.

CSO: 5550/0147

INDIA

MINISTER TELLS SITUATION IN TELECOMMUNICATIONS

Calcutta THE TELEGRAPH in English 23 Jul 85 p 6

[Text]

Calcutta, July 22: The Centre is considering the possibilities of handing over the existing telecommunication networks in major cities to public sector corporations. According to Mr R.N. Mirdha, minister of state for communications.

Mr Mirdha informed newsmen after a meeting with Indian Chamber of Commerce here today that an inter-ministerial committee was now looking into various aspects of setting up state-owned corporations to install and run the telecommunication systems in New Delhi and Bombay initially.

According to him, such corporations will have greater administrative flexibility and will also be able to raise resources from within the country and abroad to finance the huge investment plan taken up for this sector during the Seventh Plan.

He said that the Planning Commission had sanctioned an outlay of Rs 1,800 crores for the telecommunications sector during the plan period and a special bonds issue to raise part of the resources was in the offing.

At present, there is a backlog of 8.9 lakh telephone connections. But the figure does not reflect the true picture as the demand will certainly go up by the time this backlog is met. Similarly, the present 17,000 telex connections in the country is also expected to go up in future. The policy was to make both telephone and telex connections available on demand by the end of 1990, the minister said.

He stated that the expansion

and modernisation programmes would go side by side. While the digital switching and transmission system was being introduced with French technology for the urban areas, satellite telecommunication systems would be used for rural areas so that by 1990 there would be a public telephone within five km anywhere in the country, he said.

Mr Mirdha said that the private sector, which had hitherto been kept out of the telecommunications sector, had now been allowed to manufacture various parts. With the permission of ownership of various telecommunication instruments and terminals by the subscribers, the private sector industrialists had also been allowed to manufacture those instruments, he said.

Clarifying a point raised by Mr R.P. Goenka, noted industrialist, the minister said that the government had adopted a centralised policy for purchasing foreign technology which were being given to the joint and private sector promoters. In case of licences also, Mr Mirdha said there might be some inconsistency, but could always be taken care of.

In case of non-voice telecommunications—telegraph—the minister said the "store and forward telegraph system," which eliminates manual retransmission, existed in only four metropolitan centres. This is now being extended to all major cities in the country. He added that the manual operations in the transit offices had been 2.6 times of the booked traffic and this was being re-

duced to 1.5 by introducing the system combined with teleprinter connections.

Mr Mirdita said that his ministry was also planning a scheme to introduce high speed teletex services for transmission of texts. This service, which is 50 times faster than telex, would be of great benefit to commercial users, he added.

CSO: 5550/0149

INDIA

## ITI EFFORTS IN DIGITAL COMMUNICATIONS REPORTED

### Research Manager Meets Press

Calcutta THE TELEGRAPH in English 12 Jul 85 p 6

[Text]

Bangalore, July 11 (PTI): The Indian Telephone Industries (ITI) will develop highly cost-effective low cost terminals (LSTs), a fully integrated system inclusive of antenna, high power amplifier (HPA) and low noise amplifier for the 'Insat' programme.

The department of telecommunications has asked for 74 terminals to be made available to them before March, 1987. The requirements of LSTs from other organisations are around 40 terminals.

For the low noise amplifier, ITI has entered into a collaboration with NEC Japan and the development work is in progress, Dr M.S. Jayasimha, general manager (research) ITI, said.

Dr Jayasimha told a group of visiting newsmen that since the department of telecommunications was planning to go in for more and more digitalised network, ITI had taken up development of digital-single channel per carrier equipment with the Telecommunication Research Centre.

Dr Jayasimha said in the past, ITI had taken up and successfully produced analog systems but since this has now been super-

seded, the R & D wing was making concerted efforts in digital communications.

He said that in the sight radio system field, the company was at a very advanced stage of development of 30 and 120-channel digital ultra high frequency radio relay systems.

He said one of the most significant achievement of R & D during 1984-85 was the development of integrated local and trunk automatic exchange equipment using the latest microprocessor technology.

The first 120-line equipment was installed at Udayaneroor (near Ernakulam) in July for commercial field trial. The equipment has been working satisfactorily, according to him.

According to ITI officials, the technology incorporated and the reliability of the operation evidenced during the field trials indicate that this could be the first electronic rural exchange equipment in the country for use by the department of telecommunications.

The department has already indicated a requirement of 10,000 lines during the current year and efforts were being made to produce the equipment.

## Electronic Exchange Plans

Madras THE HINDU in English 19 Jul 85 p 6

[Text]

NEW DELHI, July 18.

The Palghat unit of the Indian Telephone Industries (ITI) has signed a collaboration agreement with Messrs CIT-Alcatel of France for manufacturing digital electronic trunk automatic exchange (DTAX).

Set up in 1974 to produce small electronic private automatic branch exchanges (PABXs) the unit has now plans to manufacture digital electronic PABXs in collaboration with a foreign manufacturer and integrated local-cum-transit digital exchanges based on in-house R and D design.

When this programme is implemented, according to official sources, the unit will be manufacturing 30,000 lines of DTAX, 40,000 lines of PABXs and 50,000 lines of rural automatic exchanges (RAX) taking the annual turnover from Rs. 3 crores to over Rs. 70 crores by 1987-88. The investment will be around Rs. 40 crores. Of this Rs. 30 crores will be for plant and machinery.

This project when completed will provide jobs to 1,000 persons as against 280 employed now. In addition, it will help develop ancillary industries for making mechanical components like cabinets, frames, coils and transformers and electronic components.

The company recently obtained Rs. 1 crore order for a turnkey communication system for the Neyveli Lignite Corporation.

With the expansion to 1,20,000 lines and assimilation of the CIT-Alcatel technology the unit will become a major manufacturer of electronic exchanges and reach a target of 5,00,000 lines by the end of the Seventh Plan. The turnover of the unit will cross Rs. 200-crore mark making it the third biggest telecommunication factory in the country following Bangalore and Mankapur.

CSO: 5550/0141



INDIA

## 'GIANT LEAP' NECESSARY IN TELECOM SYSTEM

Bombay THE TIMES OF INDIA in English 12 Jul 85 p 9

[Article by S. Dharmarajan]

[Text]

BANGALORE, July 11.

THE state-of-art systems, being developed in the Indian telephone industries here, point to the imperatives of colossal effort and investment for saving the national telecom network, perilously close to collapse because of overload.

With just four million telephones against a projected requirement of 25 million, the situation calls for a giant leap to ensure a satisfactory telecommunication service at least by the turn of the century. ITI's role is critical in this exercise.

The daily experience of telephone users' repeated attempts at calls and frayed tempers underscore the lag in this developmental priority. The country would have to lift itself from its unenviable position of having the lowest telephone density among industrial countries (four for a population of 1,000).

The Sarla committee, which went into telecom services and the agencies concerned agreed that there is no option to going electronic because of the system's proven reliability, ease of maintenance and the range of facilities it can offer.

At the same time, planners and engineers affirm that the system should be self-reliant which was approvingly noted by the prime minister himself at his recent press conference.

This precludes any multiplicity of systems. Digitalisation technology for the manufacture of switching equipment in ITI's first electronic factory at Mankapur in U.P., has already been provided by Chalcid of

France. There is little prospect of taking in any additional foreign system until an indigenous system for the 90's is developed by the Centre for development of telematics, (Cdet for short).

This, in effect, means that further manufacturing programme, until Cdet technology is available, will be based on the Alcatel system, which now ITI could call its own. The technology has been transferred to the Mankapur unit and ITI's R and D is engaged in the task of adoption, innovation and upgradation. The best that could happen to country and the ITI, in particular, in this effort is that it has built a pool of over 600 electronic engineers, mostly under 30.

Production at Mankapur was scheduled to start by November 1984. However, flood, accident and a fire delayed the civil works and production could start only in April this year.

Mankapur will produce 500,000 lines when it attains full capacity in five years on an investment of Rs. 170 crores.

Using the same technology, the ITI management feels two more electronic Switching System (ESS) units could be started for Rs. 130 crores and these could be located in Bangalore and Puzhath using the existing infrastructure facilities to manufacture an additional half-a-million lines each.

Engineers maintain this could be achieved by setting up ESS factories limiting the operations to final assembly and testing. With such an approach, manufactured piece parts and electronic components will normally be bought-out items. Private sector component manufacturers can

step into this area. In the present context, components will be procured initially from abroad and later substituted by indigenous production from component manufacturers.

With a "no-nonsense" technocrat like Mr. K. P. P. Nambiar, who had made Khetan an incredible success story, at the top, one could put faith in the claim that both the new ESS factories would reach full production within three years. He hopes that if clearance is obtained on time and production goes as per schedule the supply-demand gap will be reduced.

There is justifiable feeling that ITI has lost time which should be made good. To cite a simple illustration related to security is that the top security telephones used by VVIPs and defence top brass are now imported, with the manufacturers and their agents fully acquainted with decoding. The ITI is now making an indigenous prototype and for obvious reasons officials did not want to elaborate. Plans are underway to raise the output of phone instruments, including the push-button type to 11 million.

Paralleled with the modernisation ITI, one of the oldest public sector undertakings as suppliers of all telecom equipment, is taking steps to phase out the obsolete crossbar and stronger and has gone in for diversification to meet the demands of users other than the department of telecommunications.

During the past few months, ITI has fabricated communications equipment for defence, satellite earth stations, provided communication terminal for operation in disturbed areas and manufactured microwave equipment for TV and data, Bokaro steel plant and the Calcutta metro railway.

CSO: 5550/0142

INDIA

INDIA READY FOR INTRODUCTION OF FIBER OPTICS

Bombay THE TIMES OF INDIA in English 15 Jul 85 p 15

[Article by S. Dharmarajan]

[Text]

HYDERABAD, July 14

INDIA is set to induct into its next generation telecommunication system, fibre optics, the dream wire that can transmit a massive volume of information as pulses of light. Elsewhere, it is recognised as a basic infrastructure for information-based societies.

The astounding range of applications which the hair-thin strands of glass fibre cable is capable of is a contemporary phenomenon in industrialised countries. For this reason it is identified as a thrust area for development in the national plan for science and technology.

Skill, co-ordination of implementation plans by agencies seeking production of the fibre and related equipment as also speedy clearances on the collaboration and support to R and D are essential, lest the country lag in the state-of-the-art technology.

Optical fibre is based on the concept: Show light to one end and the other end shows light to you. It turns voice signals into light.

Hindustan Cables Ltd. (HCL), an affiliate of the industry ministry whose prime customer is the communication ministry, has planned an investment of Rs. 28-25 crores (exchange compound) and prepared a production schedule for this medium.

While a Madhya Pradesh government undertaking and the Indian Telephone Industries have also staked their claims to manufacture the fibre and related equipment, HCL has pushed its plans well ahead of them and is only awaiting clearance, possibly on the choice of collaborator and related issues.

VARIED APPLICATIONS

HCL has kept in view all its long-term applications. The thin medium could transmit messages to as many as 2,000 telephones at a time.

Among other uses are facsimile and data communication, videotex, tele-shopping and telebanking.

One other use of optical fibre is in medical diagnosis. By using a fibroscope one can do away with conventional ways of spotting sick spots deep inside the human body.

Experience in other countries — fibre optics was fully operational only three years ago — shows that compact areas with concentrated population and crowded urban landscape are a suitable environment for this technology.

R and D at HCL is focussing on improvement of the light transmission capability of the system so that it is updated for introduction.

The company had a pioneering role in fibre optics and was associated with laying and installing the first link in Pune using the medium.

The HCL chairman, Mr. S. K. Roy, and executive director, Mr. D. K. Gupta, maintain the company's claim to venture into fibre optics on the basis of its past performance in meeting the cable and wire requirements for communications, defence and railways.

Projections place the turnover at Rs. 52.00 crores when in full production and a 21.5 per cent return of net expenditure.

The officials hope to complete the three-phase establishment of this fibre facility by October, 1987. The first phase would be gone through before 1987. They said a fully indigenous fibre optic system would be ready within 27 months from the date of approval.

IMPRESSIVE TRACK RECORD

HCL, commissioned 11 years ago, has an impressive production profile that covers insulated and jelly-filled cables. Its turnover has steadily increased to meet the demands of the P&T, railways, collieries and public sector undertakings.

Engineers at HCL explain that if the telephones are faulty it is not because of the cables.

As fibre optics may take time to replace conventional cables, HCL has launched with IDA assistance and collaboration with STC of the U.K., the manufacture of jelly-filled cables. These are unaffected by water seepage, which often disrupts the telephone network during the monsoon.

The project, with a capacity of three million conductor km. for the manufacture of polyethylene insulated jelly-filled cables is under implementation.

Mr. Ray said the company had drawn up its plan for production and sales during the seventh plan (1985-90). He estimated the sales during 1989-90 would reach Rs. 600 crores, a quantum jump of four times over 1984-85, the last year of the sixth plan.

#### INVESTING IN FUTURE

The company has also embarked on a programme of progressive induction of bright and talented young people from universities to support the projected R and D activities.

For R and D, several instruments have been developed that would help the P and T field staff locate and identify various types of faults in the cables in the network for tuning up the services.

HCL officials take pride in the R and D effort, which has resulted in its new project setting up the optical fibre unit, "the most exciting venture of this kind in this part of the sub-continent." HCL is the first enterprise to be entrusted by the government with this prestigious project.

INDIA

## SOURCES REPORT DEVELOPMENTS, PLANS IN SATELLITE PROGRAM

Madras THE HINDU in English 6 Aug 85 p 7

[Text]

INSAT-1B, India's first multi-purpose satellite, has, during its 21 months of operation, surpassed the fixed target set for utilisation in the major areas of telecommunication, meteorology, radio and television.

According to official sources, the satellite has successfully completed over 22 months in orbit and except for a brief period of about 36 hours following "loss of earth lock" on August 9 last year, its performance has been "satisfactory."

All four of its service payload capabilities are "on" and are in regular operational use. From the viewpoint of on-board "propellant" availability for station keeping and attitude maintenance, its end of life (EOL) is at present predicted as some time in the second-half of 1989.

The satellite was operational on October 15, 1983, and was dedicated to the nation by the late Prime Minister, Indira Gandhi, on February 11, 1984, when the Posts and Telegraphs Department made special video link arrangements with satisfactory results.

The sources said 2,093 circuits had been given for live traffic by June 1985 against the target of 2,053 circuits following the satisfactory performance of the circuits commissioned.

The prototype unit of disaster warning system (DWS) receiver has been successfully tested with the satellite.

**New earth station:** A new earth station at Kulu is scheduled to be commissioned this year. Eighteen low cost terminals in various parts of the country have been authorised and these stations would be commissioned progressively during 1986.

The sources said another 26 earth stations are in final stages of consideration. In addition the main earth stations in Bombay, Calcutta, Delhi and Madras are under final stages of augmentation in order to enhance additional telecom capacity.

**TV transmission:** In the field of television utilisation, the sources said, the average monthly transmission now exceeded 900 hours. At present, 166 of the existing 173 TV stations in the country are in the INSAT-1 TV network. The remaining seven stations receive their national programme fed through terrestrial media.

In addition, 865 direct reception sets (DRS) have been deployed in select rural clusters for community viewing.

So far as utilisation of the satellite in radio network is concerned, 86 of the intended 91 radio stations in the country are now in the network and all stations are scheduled to be in the INSAT-1B radio network before the end of this year.

**Meteorological use:** Regarding the target for the meteorological utilisation, the sources said, the INSAT meteorological data utilisation centre at the Meteorological Department here has been in service since the satellite was in operation. The centre processes, analyses, utilises and disseminates the very high resolution radiometer (VHRR) imagery and collects other relevant data.

Over 7,050 imageries, received so far, are used by the Meteorological Department for advance warning of cyclones and for normal weather forecasting. Wind vectors and sea surface

temperatures are now derived on a routine basis.

Of the intended 100 land-based data collection platforms in the initial INSAT-1 system, 76 have now been deployed and the remaining are scheduled to be deployed before the end of current year. — PTL

### Second generation satellite

UNI reports: India has embarked on an ambitious second generation satellite (INSAT-2) project with work on the test spacecraft of this new series having started in April. The first

INSAT-II test spacecraft launch is expected in early 1990 and the second in early 1991, according to official sources.

The INSAT-II test spacecraft would be identical to the operational second generation satellites.

Apart from being an all-indigenous affair, the INSAT-II series would be launched by the Indian geo-stationary launcher.

These multi-purpose satellites would be larger in size and would have greater capabilities than the present INSAT-I series.

INSAT-II is aimed at catering to significant increases in the telecom and television services requirements in the 1990s.

The sources said work on INSAT-1C is progressing satisfactorily and it is likely to be delivered slightly ahead of the scheduled date of January 31 next year.

This satellite is expected to be launched by flight 61-M of the U.S. space shuttle. An Indian payload specialist would also fly with INSAT-1C aboard the American space shuttle.

CSO: 5550/0155



INDIA

BRIEFS

**CALIFORNIA-MYSORE CONNECTION--NEW DELHI, July 9--**In a modern telecommunication experiment, the National Informatics Centre (NIC) here has linked the teleprinter at the Central Food Technological Research Institute (CFTRI), Mysore, to a computer system in California. The CFTRI teleprinter now works as an "on-line" terminal of the Californian computer and can fetch within seconds any information stored in that system for the benefit of CFTRI scientists. The connection at CFTRI is being used for instantaneous retrieval of information on fruit preservation, cocoa and butter substitutes, and use of solar energy for dehydration of fruits and vegetables. [Text] [Madras THE HINDU in English 10 Jul 85 p 7]

**NONALIGNED MEDIA BODY--NEW DELHI, July 14 (PTI)--**"Namedia Foundation", to promote research, training and projects of mutual co-operation of common interest to countries of the non-aligned movement with the initial focus on India was formed today. Mr. Nikhil Chakravartty heads the founding board of trustees which comprises 15 members drawn from the media Indian. Mr. Chakravartty was chairman of the Namedia conference held here in 1983. The foundation is to launch a membership drive and concretise specific projects and programmes within the next few weeks. It will also set up chapters in various metropolitan centres, starting with Bombay, to pursue training, documentation and research objects. The foundation plans to publish a quarterly from Delhi dealing with media objectives of the non aligned countries including the challenges and opportunities offered by modern technology. One of the immediate programmes of the foundation is to organise a national colloquium on what should constitute a national information and communication policy, a topic of urgency in view of the rapid advancement of developments in this field in India, accentuated by the nation's policy of pressing them forward. It will also be of practical value to many non-aligned countries which are in the process of framing their own policies. [Text] [Bombay THE TIMES OF INDIA in English 15 Jul 85 p 16]

**SATELLITE LAUNCH CAPABILITY--TRIVANDRUM, July 21 (PTI)--**India would be capable of launching its own space craft by 1992, the Indian Space Research Organisation (ISRO) chairman, Prof. U. R. Rao, has said. During his recent visit to the Vikram Sarabhai space centre at Thumba near here, he said placing a 1000-kg Indian remote Sensing Satellite (IRS) in a 900-km polar orbit by the polar satellite launch vehicle in 1987-88, would herald the application era and mark the mastery of launch vehicle technology as the satellites would be launched

"from our own soil using our own launch vehicles". Project requirements for future generation satellites would be more complex with increase in capacity while resource constraints could come in the way of future space programmes, he said. Joint space ventures were necessary, as otherwise the country would be "left behind" in space-related research, he added. The IRS satellites which would fully fructify in the next decade, would be useful for forecast of weather, floods, snow melt run off in Himalayan rivers, estimation of natural resources like minerals, underground water, measurement of land and ocean surface temperatures, agriculture, demography including land utilisation, crop growth, pest control and forest fire, river water and atmospheric pollution control. The PSLV programme involves mastering of new techniques in propulsion technology. The second and fourth stages of the vehicle use liquid propulsion. "Vikas" the liquid engine for the second stage, which can produce a thrust of about 70 tonnes has been fabricated at the Vikram Sarabhai space centre here. [Text] [Bombay THE TIMES OF INDIA in English 22 Jul 85 p 4]

REMOTE AREA COMMUNICATIONS--NEW DELHI, July 21--A cost-effective and highly reliable microprocessor controlled radio system, to provide telephone facility in remote areas, will be made indigenously, as a result of the tie-up, finalised by the State-owned U.P. Electronics Corporation (Uptron) with Fujitsu of Japan. According to the Uptron Chairman, Mr. P. C. Joshi and the managing director, Mr. K. M. Rai, the tie-up envisages transfer of technology and technical collaboration by Fujitsu to manufacture Multi-Access Rural Radio telephone system. This will be the second unit in the country to make MARR. The first one is by the Gujarat Communication and Electronics Ltd. (GCEL) with Italian collaboration. The Uptron project is different from that of GCEL in that it will make microprocessor controlled systems. Mr. Mohtsuki, Managing Director of Fujitsu, said the MARR was quite suitable for Indian geographical conditions and would contribute to development of remote areas. [Text] [Madras THE HINDU in English 22 Jul 85 p 16]

CSO: 5550/0148

IRAN

#### BRIEFS

TV RELAYS OPERATIONAL--On the occasion of government week and the glorious 'Id of sacrifice, two television relay stations have started operations following the efforts of technicians of the Voice and Vision of the Islamic Republic--Sari Center, bringing television coverage to (Vereshk) and Savadkuh. The (Vereshk) relay is a 10-watt station broadcasting Network I on Channel Nine. The operations to set up a 1-kw relay broadcasting Network II on Channel Seven for Qomcheh was also completed by technicians of the Voice and Vision--Esfahan Center. The area's Network I relay was also upgraded from 200-watts to 1-kw broadcasting on Channel Nine. [Summary] [Tehran Domestic Service in Persian 0430 GMT 27 Aug 85]

CSO: 3500/4745

NEPAL

BRIEFS

FRENCH LOAN--France has agreed to loan Nepal over \$11 million, most of which will be spent on equipping the kingdom with telephones. Nepalese Finance Secretary Karna Dhoj Adhikary signed a financial protocol agreement in Paris yesterday. [Excerpt] [Katmandu External Service in English 1445 GMT 27 Jul 85 BK]

CSO: 5500/4743

PAKISTAN

WESTERN LINK TO TV TRANSMITTER URGED

LD211601 Moscow TASS in English 1542 GMT 21 Aug 85

[Text] New Delhi, 21 Aug TASS--A powerful propaganda television programme relay transmitter center has been formed in the area of Sialkot, on the territory of Pakistan, with the direct participation of Western countries. As is reported by THE UNITED NEWS of India, the ideological subversive centre is being actively used for conducting propaganda against India.

According to the local press, the West is more actively using Pakistan's territory for conducting psychological warfare against sovereign countries of the region, primarily India and Afghanistan. As is reported by the weekly BLITZ, the construction of a big branch of the subversive "Liberty" and "Free Europe" radio stations, financed by the U.S. CIA, is drawing to a close in the country. The construction of a whole number of relay stations is to begin in the near future. They will transmit propaganda concoctions in languages of peoples of the region, prepared in Munich (FRG).

The United States, writes the weekly BLITZ, is seeking, on the one hand, to broaden the proportions of radio subversive activities against the Democratic Republic of Afghanistan, and, on the other hand, to destabilise the situation in India, by kindling secessionist sentiments among advocates of formation of "an independent state of Khalistan" on the territory of the state of Punjab.

More than 50 Western radio stations every day clutter up the air in the region with malicious anti-Indian and anti-Afghan propaganda.

CSO: 5500/4744



ANGOLA

BRIEFS

TANJUG, ANGOP LINE TO YUGOSLAVIA—Improvements are being made to provide quicker and more efficient new service from Angola to all world countries. In Luanda yesterday, a direct line via satellite technically called conduplex was opened. Two news agencies, ANGOP from Angola and TANJUG from Yugoslavia were involved in the opening of the line. This event comes on the eve of the opening of the nonaligned conference and is an important step in the strengthening of the cooperation between the two countries. In addition to this link with Belgrade, ANGOP has already conduplex lines with Moscow, Berlin, Rio de Janeiro and Lisbon. [Text] [Luanda Domestic Service in Portuguese 0500 GMT 30 Aug 85 MB]

CSO: 5500/188

BURKINA

BRIEFS

DRAFT CONTRACT WITH TASS--A council of general coordinators presided over by Comrade Captain Thomas Sankara, chairman of the National Council of the Revolution [CNR] and president of Burkina Faso, was held this afternoon at the presidency. The council examined a certain number of dossiers pending and made decisions on them. The council of coordinators of Burkina Faso also approved a draft contract between the Government of Burkina Faso and the Soviet News Agency TASS through the Soviet Council of Ministers. Burkina Faso, which already has similar agreements with other agencies, expects to diversify its sources of foreign information, which, for the moment, is practically limited to AFP. This agreement demonstrates the revolutionary government's will to strengthen cooperation with all peoples based on mutual interest. [Excerpts] [Ouagadougou Domestic Service in French 2007 GMT 16 Aug 85]

CSO: 5500/183

KENYA

BRIEFS

NEW SHORTWAVE TRANSMITTER--Nairobi, 14 Aug (KNA)--The PS [permanent secretary] for works, housing, and physical planning, Mr Letting, today received the keys for the 250-kilowatt Kamarock transmission station. The project, which started in July 1983, will improve radio reception all over the country at a radius of 1,800 miles. The project, which will cost over 100 million shillings, will be commissioned soon after completion of its two main transmitter machines. [Excerpt] [Nairobi KNA in English 1450 GMT 14 Aug 85 EA]

CSO: 5500/183

SENEGAL

INAUGURATION OF SATELLITE 'ALTERVISION' REPORTED

AB211935 Dakar PANA in English 1831 GMT 21 Aug 85

["Altervision: Maiden Transmission"—PANA headline]

[Text] Dakar, 21 Aug (PANA)--Today at 15 hours GMT Africa takes an important step in the direction of high communication technology. "Altervision," the new pan-African newsfilm group headed by Cheick Ousmane Diallo, formerly director general of PANA, inaugurates its first satellite transmission with an interview of Dr Cheadly Ayari [name as received], president of the Arab Bank for the Economic Development of Africa (BADEA) on the occasion of the bank's 10th anniversary this year.

During the 10-minute interview (five minutes in English, five minutes in French) Dr Ayari reports on the bank's achievements during the past decade and its determination to finance development projects in African countries.

On the recent economic summit, the Arab Bank president says that it was held at the opportune moment, demonstrating the growing preoccupation of African leaders about the need to concert action towards winning the war against underdevelopment. To this end, Dr Ayari believes that support by Arab countries should be strengthened within the framework of Afro-Arab cooperation.

The television programme produced by Altervision shall be transmitted in about 20 African countries.

The objective of the new group is to support the efforts of the public and private sectors in news flow between African countries as well as give the continent a new image in the world.

CSO: 5500/186

SOUTH AFRICA

**MOST WHITES RELY ON TELEVISION FOR NEWS**

Johannesburg THE STAR in English 12 Aug 85 p 6

[Text] The majority of white urban South Africans rely on television as their main source of news.

This is the finding of the latest Omnichack poll conducted by Research Surveys, a market research company, among 800 white housewives and 500 white men in the country's main urban centres.

Overall, 71 percent of all whites turn to television newscasts to keep abreast of events.

Of the housewives, 75 percent said television was their main news source, compared with 66 percent of men respondents.

Daily newspapers do not feature strongly as the medium delivering the news. In all, only 42 percent of whites depend on the dailies, with more men relying on these sources (47 percent) than women (40 percent).

Of almost equal importance is radio news, with 33 percent of urban whites relying on this source.

Overall, Sunday newspapers were regarded as main sources of news by 11 percent of the white urban population.

The dominance of TV applies at every level--age, language group, income and region.

Not surprisingly, 53 percent of women who were 50 and older listed radio as their prime source of news. At the other end of the scale, 51 percent of women between 18 and 24 relied on newspapers.--SAPA.

CSO: 5500/185



SOUTH AFRICA

NATIONAL TV REPORTEDLY NOT GIVING VIEWERS FACTUAL EVENTS

Johannesburg THE SUNDAY STAR in English 11 Aug 85 p 2

[Article by Linda Vergnani]

[Text] If you want to see a different view of what is happening in South Africa, fly to New York or London and turn on a television set.

Overseas viewers have seen scenes of beatings, shootings and brutality in South Africa, while local viewers have been treated to a sanitised view of what is happening.

The SABC says it is giving viewers the facts. Foreign correspondents and people who have travelled overseas say the public is being given a false feeling of security. Neither the extent of the unrest nor the violent reaction to it are being shown locally. Among footage overseas viewers have seen since the declaration of State of Emergency have been scenes of:

--A teenager being beaten with sjamboks by two policemen after a funeral in Zwij, Eastern Cape;

--A youngster being dragged between two horsemen after a protest was broken up outside the Protea Magistrate's Court in Soweto;

--The use of birdshot, buckshot and rubber bullets.

The SABC, it has been said, is receiving footage of the incidents, but it is not being used. An example was a protest march by students in Cape Town this week. An SABC-TV crew filmed scenes of students being beaten. Millions of viewers overseas saw the event, but the version screened in South Africa excluded the violence.

According to foreign TV correspondents, the SABC-TV crew sent 90 seconds of "extremely dramatic" material on the incident to Auckland Park, but only 28 seconds were screened on SABC-TV news.

A foreign correspondent, who asked not to be named, said television audiences worldwide were shown footage of "police attacking and beating students with batons."

"All that local TV news showed were the students marching, their placards, the police charge, and then it cut to shots of police putting people in a van."

A TV correspondent for a major American network said: "I know a lot of whites in this country and I do not think any of them has any idea of what is going on a few miles from their homes: the anger, the bitterness and frustration or the organization and commitment of the black people."

"Very brutal tapes" have been transmitted to overseas networks, using SABC facilities.

Dr Alex Boraine, chairman of the Federal Council of the PFP, said: "SABC-TV is adopting a censoring process that is causing the average South African to live under false pretences.

Dr Boraine was in New York when the emergency was declared. "Overseas one is confronted with footage we don't see here at all. What comes over very clearly is that it's not just a handful of agitators causing unrest in South Africa--it's a whole community in protest."

Johan Pretorius, editor-in-chief of SABC TV News said: "We are convinced we are fully informing the public of South Africa about the facts of the situation in the country today, but we do draw the line when it comes to visual reporting because extensive visual reporting can have a snowball effect on violence.

"We have our own editorial policy based on what we believe are sound broadcasting, editorial and moral norms, and we are convinced that we apply them without under-informing or misinforming the public."

CSO: 5500/185

SOUTH AFRICA

ORGANIZATIONAL CHANGES AT SABC REPORTED

Johannesburg THE STAR in English 9 Aug 85 p 13

[Article by Andrew Walker]

[Text] The wind of change is sweeping through the SABC as the corporation consolidates its executive structure and its radio and television services in a bid to cut costs.

The retirement of four of the corporation's top executives was announced yesterday. They all hold the position of deputy director-general and are Mr Gert Yssel (management services), Mr Jack Siebert (advertising services), Mr Dougie Mills (technical) and Mr Pieter de Bruyn (TV1).

The four, who are members of the corporation's key management committee, will leave the corporation at the end of next month after requesting retirement, an SABC statement said.

The statement said that the retirements were approved at a board meeting held on Wednesday.

The board also approved the restructuring of the management committee with effect from October 1, resulting in the following appointments:

--Mr Chris Swanepoel is promoted to deputy director general with responsibility for TV1 and for radio services in Afrikaans and English as well as educational programmes.

--Mr Piet Theron is promoted to senior director (technical).

--Mr Carel van der Merwe is promoted to senior director (planning and computer services).

--Mr Dan Esterhuyse is promoted to senior director (manpower and secretariat).

--Mr Wynand Harmse, deputy director general (finance) also takes responsibility for advertising and legal services.

The other members of the management committee are: Mr Jan van Zyl, deputy director-general (news), Mr Theuns van Heerden, deputy director-general (TV2/3/4 and black language radio services), and Mr Kobus Hamman, senior director (news and external radio services).

The moves finalise the rationalisation and restructuring of the SABC's top management.

As part of cost-cutting measures the corporation is undergoing a major rationalisation of television and radio services.

Staff will not be retrenched but will be reduced through the normal staff turnover of about 14 percent a year.

The workforce of 7,000 could be reduced by almost 1,000 by the end of the year through not filling posts left vacant by resignations.

The corporation has offered employees the option of applying for early retirement from the age of 55. Normal retirement age at the SABC is 60.

An SABC spokesman said employees whose posts were abolished through the rationalisation programme would be transferred to other departments.

As part of its rationalisation process, the SABC is to drop its English, Afrikaans and Springbok radio services and replace them with two new services on January 1.

CSO: 5500/184

**SOUTH AFRICA**

**BRIEFS**

**SABC SATELLITE EQUIPMENT**--The SABC has signed a R4m contract for satellite communications equipment that will give it the capacity to broadcast to the whole of Africa from mid-1986. But an SABC spokesman said the purpose was to improve radio and TV transmissions within South Africa, and that the ability to reach the rest of the continent was "incidental". The corporation has already leased a transponder (a combination receiver and transmitter) on an Intelsat international communications satellite at a cost of \$1,6m a year, according to Neel Smuts, general manager, transmitters. [Text] [Johannesburg BUSINESS DAY in English 2 Aug 85 p 2]

CSO: 5500/180



ZIMBABWE

BRIEFS

**NEW SATELLITE GROUND STATION**--The Prime Minister, Comrade Robert Mugabe, today opened the new Mazowe Earth Satellite Station which will provide Zimbabwe with an independent telephone, telex and television links with the rest of the world. After opening the station, Comrade Mugabe made a direct call to Zimbabwe's Ambassador to Japan, Comrade Herbert Kateza and talked to him for a few minutes. The prime minister said when Zanupf came to power at independence, most of the vital institutions were totally dependent on racist South Africa. He said in the area of telecommunications Zimbabwe suffered interference and eavesdropping from the Pretoria regime. Therefore, Comrade Mugabe said, economic, political, and social transformation. The prime minister thanked the Japanese government for granting a loan of 12 million dollars to the Post and Telecommunications Corporation [PTC] and for providing engineers who supervised the installation. In the field of technical training, Comrade Mugabe said the PTC will soon achieve self-sufficiency because it is training engineers and technicians. [passage omitted] [Excerpt] [Harare Domestic Service in English 1600 GMT 22 Aug 85 MB]

CSO: 5500/187

USSR

### U.S.-PLANNED RADIO FREE AFGHANISTAN ASSAILED

LD292201 Moscow Domestic Service in Russian 1900 GMT 29 Aug 85

[Text] In accordance with a U.S. bill signed recently by President Reagan, a new radio station which will broadcast to Afghanistan is being set up. Here is a Moscow Domestic Service commentary with Vladimir Beloshapko at the microphone:

It must be said that the U.S. anti-Afghan propaganda conveyor belt is working flat out now. Since the very first days after the April revolution Washington has persistently been trying to discredit the people's power in the Republic; undermine the population's trust in it; distort its foreign policy; and denigrate the aid given by the Soviet Union to the Afghan people. In this propaganda aggression all possible means are put to use, from completely hushing up Afghanistan's evident success in social and economic development to blatant juggling of facts and crude slander. The "Voice of America" radio station has become particularly skilled at this unseemly business. All sorts of clumsy fabrications have been broadcast on its waves about the oppression of religious believers in Afghanistan, about the brutal acts of Afghan and Soviet servicemen, and about the use of chemical weapons.

You and I, comrades, do not have to prove the mendacity of these and similar accusations. Public opinion in other countries, too, believes the Washington disinformation agents less and less. So one assumes that the creation of this new radio center of disinformation rose out of the desire to enhance the effectiveness of the ideological sabotage against Afghanistan.

Do not be confused by its pretentious name, "Free Afghanistan". The word "freedom" is juggled in Washington with amazing ease and is frequently used to conceal acts which have nothing in common with that lofty concept. One could recall in this connection, the activities of "Radio Liberty" and "Free Europe" radio stations, which have close links with the CIA and under whose mask psychological warfare has now been carried out for many years against the countries of the socialist community. There is no doubt that the anti-Afghan radio station will also be built along their lines and in their likeness.

First of all, the boss is the same: the Central Intelligence Agency. As the U.S. press writes, it will be only formally under the jurisdiction of the U.S. Board of International Broadcasting. And second, representatives of the administration have stated that the staff of the new radio station is being made up of dushmans. These terrorists, having exchanged their submachine guns and explosives for a microphone, will hardly be talking about their own bloody deeds against the Afghan people. It is also unlikely that the truth about who is preventing the Democratic Republic from building a new life will come from their mouths. For the new radio sabotage center, whatever name they think up for it, has quite different aims.

USSR

## WEST'S ANNULMENT OF BROADCASTING CONVENTION NOTED

LD292024 Moscow International Service in Polish 1400 GMT 29 Aug 85

[Text] As reported from Washington, the U.S. State Department has greeted with satisfaction the decision of a number of Western countries on annulment of the international convention on broadcasting in the interests of peace. Washington has stated that this step will contribute to the unrestricted flow of information between countries, which is in the interests of the whole world. Editor Dmitriy Kisilev writes in this connection:

It is not difficult to see that the State Department is merely speculating on the words freedom and free flow. In this case, the attempt to reject the convention in the name of a free flow could be compared, for example, with the proposal to abolish traffic lights, giving as motive the need for ensuring a free flow.

Let us take a look at the text of the international convention on broadcasting in the interests of peace. Its first paragraph states: The parties undertake to place a ban on, and, if this should take place, an immediate halt on their territory of the broadcast of all programs that would cause harm to international mutual understanding, which, because of their nature, aim to incite the population of any area to acts that could not be reconciled with the internal order or safety of any area of whatever party.

Other paragraphs concern particularly the ban on incitement to war, and undertakings to broadcast only truthful information.

Can compliance with these conditions impede the free and honest exchange of information? Of course not. And so this is not the reason why the convention does not suit the West. The true motives of the United States and some of its allies, one must conclude, lie hidden in the fact that they mean to continue to intensify the psychological war against the socialist countries. To intensify anti-Soviet and anticommunist propaganda, this is what the U.S. President deems his most important initiative in foreign policy. And in these conditions the assumptions of the convention are a mere obstacle to the activities of subversive radio stations. So talk has begun about a free flow; but in this case this only means unrestricted possibilities for carrying out ideological subversion, the freedom to carry out seditious work. The principle of working for the destabilization of the Soviet Union and its allies, proclaimed by Washington, of sowing discord among their nations and governments, is fully served by other moves that have been undertaken in recent times by several Western countries.

Some \$1 billion has been assigned for the technical modernization of the Voice of America. A record sum has also been received by the voice of the CIA, Radio Free Europe. Recruitment to these radio stations, declared enemies of the Soviet Union and emigre scum, is continuing. Decisions on employment are in fact made by the CIA. Employment in the BBC is also going in this direction. Cadre policy is conducted there by the MI5 special service. Even in Swedish Radio, personnel matters lie within the competence of the secret police, SAPO. In these, as in other Western subversive centers, people are carefully chosen who will be suited to the transmission of an unrestricted flow of information to socialist countries.

So the annulment by several Western countries of the international convention in broadcasting in the interests of peace is only an episode in the psychological war against socialist countries, an episode in a war without principles.

CSO: 5500/1044

USSR

#### BRIEFS

**BURKINA FASO-TASS AGREEMENT**—Ouagadougou, 23 Aug TASS--The acting Minister of Information and Culture of Burkina Faso Desire Bonogo and the Charge d'Affaires ad interim of the USSR in Burkina Faso V. Timoshenko signed an agreement here Thursday [22 August] which provides for the development of cooperation in the sphere of information between the AIB News Agency of Burkina Faso and the TASS News Agency of the USSR. [Text] [Moscow TASS in English 0921 GMT 23 Aug 85 LD]

C80: 5500/1044



EUROPEAN AFFAIRS

OUTLOOK FOR NORDIC TELE-X SATELLITE PROJECT SEEMS DISMAL

Stockholm SVENSKA DAGBLADET in Swedish 15 Jul 85 p 21

[Article by Gote Andersson: "A Gloomy Future Predicted for Tele-X"]

[Text] Sweden's greatest space effort through the ages, the satellite Tele-X, may be a gigantic mistake. There simply is not enough of a market in the Scandinavian countries for this satellite system.

That is the conclusion drawn from the answer given by the National Telecommunications Administration [NTA] to a government budget question about Sweden's future activity in space, 1986-1991. Tele-X has cost about 1.5 billion kronor and a launch is planned for February 1987. Very high officials within the NTA are questioning whether Tele-X should even be launched.

The National Telecommunications Administrations in Sweden and Norway are going to operate Tele-X through their jointly owned management company Notelaat. The National Swedish Space Company is responsible for the production of the satellite system. Tele-X is based on the premise that one-half of the satellite's capacity will be used for telecommunication and the other half for TV-distribution.

It was originally thought that the systems would be tailor-made for the Scandinavian countries. Now, the NTA writes that the telecommunications services of the satellite cannot compete with the earthbound digital telecommunications networks in Scandinavia. On the other hand, Tele-X could serve as a demonstrator for sales to Third World countries and to other countries which lack digital telecommunications networks, writes the NTA.

Financial Position Rocky

The National Telecommunications Administration in Scandinavia have published information about the ability of Tele-X to compete with the digital ground network in two reports.

These reports are rocking the financial position of the whole Tele-X project, since the intention is that subscriber fees will pay for the acquisition costs

of the satellite. The Swedish government (82 percent) and the Norwegian government (15 percent) have financed Tele-X.

It was thought that the larger part of the monies would be returned to the ones who did the financing through these subscriber fees. The governments would only subsidize the R&D efforts of the project.

The position of the Tele-X satellite is weakened even more by the fact that the politicians still have not managed to agree on the amount of the subscriber fees for the two TV-channels that will be distributed by Tele-X. The original Swedish bid was for 75 million kronor per channel and year, i.e., 150 million.

The whole satellite, however, would need an annual income from subscriber fees in the magnitude of 300 million kronor.

This income would pay for operating expenses and for the initial outlay for the satellite. It is easy to see what will happen if half of the income disappears.

"If the Tele-X satellite cannot be filled with telecommunications, the satellite project has been a mistake," says Jan Stjarnstedt, head of the space delegation.

He simply does not believe in the investigation by the NTA about the ability of Tele-X to compete, and refers to another investigation made by the Space Company about telecommunications via Tele-X.

Our investigation demonstrates that there is interest within industry for the telecommunications services of the Tele-X satellite," says Per Zetterquist of the Space Company. The NTA has not conducted any serious market studies.

Zetterquist is of the opinion that someone besides Notelsat ought to be given the opportunity to operate Tele-X and prove that it can be done.

In the final analysis, it will be the owner of Tele-X, i.e., the Scandinavian Satellite Company (Notelsat) jointly owned by the Swedish and Norwegian governments, that must decide in the matter. If the information from the NTA is correct down the line, there will be losses of several hundred million kronor for the owner, i.e., ultimately the taxpayers in the two countries.

12339

CSO: 5500/2850

DENMARK

AGENCY DIRECTOR ON NEW SERVICES, PRODUCTS, POLICIES

Copenhagen BERLINGSKE TIDENDE in Danish 8 Jul 85 Sect III pp 16-17

[Article by Per Thygesen Poulsen: "General Director Hans Würtzen: Without Reliable Operation P & T Will Be Smiling in Vain"]

[Text] The Postal and Telegraph Service (P & T) under Hans Würtzen's leadership has transformed losses and labor unrest into profits and efficient operation. This is the context for many new activities, often in open competition with private firms. But P & T does not want growth and new products unless customers have a need and want to pay to have it covered financially.

A service is not something which is managed with a friendly smile; it is first and foremost the certainty that things are in order.

And they have become so in the Postal and Telegraph Service after Hans Würtzen put himself into the general director's seat in 1981. Labor unrest and delays are gone and a billion-kroner deficit has been changed into a profit. In 1984, P & T was able to put 306 million kroner into the State treasury, 51 million from the postal service and 255 million from telecommunications services. This is an improvement of almost 700 million kroner as compared with 1983.

"It has taken a couple of years to come onto the right side of the line. But we have no objections against demands being place on us from political quarters for considerable improvement of the books. There is no argument for anyone else than the users having to pay for our services," General Director Hans Würtzen stresses.

On the other hand there is also no reason that P & T should produce a very big profit. The most important thing for Hans Würtzen is that modern efficient service is provided, and constant development of products and the organization to ensure that rates do not run away from inflation out in the community. It is not a question of growth for growth's sake, but of offering efficient service.

"Our minister and government expect improvements in service by us. This is sensible and stimulating. But the most important service factor is that

operating reliability is in order; otherwise we are smiling in vain," the general director stresses.

### Efficient Organization

When you start with a deficit in the billion class you do not manage without prices soaring. But generally it has especially been a question of making things smarter than before, of doing away with superfluous work so that the growth in rates can be kept in check.

Both the telecommunications service and the postal service have undergone major efficiency programs. In 1981 the postal service had its entire department structure changed and four new directors came at the top, two from inside and two from outside.

Making things more efficient cannot be managed by machines alone in a service in which 80 percent of all costs are wages.

"The art of good postal leadership is sheer labor leadership. It is a craft in which we have to be skillful in finding good solutions. Mail is a perishable good; we cannot produce for storage but must be ready to tailor the job to how the mail comes," Hans Würtzen says.

"It is an advantage that we have some very direct lines of command out to all parts of our organization. We also have a quite high degree of centralization. We have to work away from this, but we must see to not making the task more complicated for management."

In these changes, the civil service system has both advantages and disadvantages. But it has been possible to make the work flexible and decentralize it without losing the advantages of clear rules. And Hans Würtzen gives the personnel organizations the compliment that they have understood P & T's problem and that it is P & T's responsibility that it is solved.

### New Products

After the organization was made more efficient, this provided strength to go out into the market with a long list of new products, often in direct competition with private firms.

It is only in letters and addressed printed matter that the postal service has a monopoly, while the telecommunications service's monopoly covers just the transmission system itself. Packages, addressless mail items, money transfers, terminals, and so forth, are offered in direct competition with others.

Among the new products it is possible to name the Scandinavian Mobile Telephone, Teletext, Supertellex, the Public Person Search Service, the Datex data pack, Taxi Giro and Express Mail. The list shows something about the breadth and quantity of the new offerings.



"In principle the goal for us is not expansion. We want only to cover serious needs which the people feel. The goal is that it must be so sensible to customers that they are willing to pay the price for it," Hans Würtzen asserts.

We should not expect a postal savings bank like the Swedish one. P & T is an expert in transferring money in the simplest possible manner; then others can take over the safekeeping of it.

#### The Telephone Companies

There are some who have claimed that P & T is "socializing" the telephone sector, because the minister of transport's superintendence duties with the concessionary telephone companies are being transferred to the general directorate.

But in Hans Würtzen's opinion one could to just as great an extent talk of a privatization. A major part of P & T's duties up to now are being transferred to the three telephone companies. This involves also the transfer of 1200 men.

At the same time there is talk of making things more efficient, after all matters regarding telecommunications are united in the general directorate as of June.

"P & T is not just a public firm. It is in addition a directorate in the ministry. It is just these two general directorates which are organized in this manner. We have various duties which we perform directly for the minister which the telephone companies have all the time been responsible for," Hans Würtzen says.

"There is some talk of considerable modernization. The State is relinquishing duties which are being transferred to the telephone companies, which are being operated under corporate law, and at the same time is making the administration more efficient," the P & T general director concludes.

#### Goal for Postal and Telegraph Service

P & T wants to stand out in the public's consciousness as an efficient and well functioning public service firm which satisfies the community's and customers' demand for services in the communications and money transfer fields.

This means the following:

That we are a public firm, which implies that our duties are to meet the community's need for communications in accordance with the political desires concerning this.

That we are a market-oriented firm, which implies that we cover the current needs of the market and customers and actively market our products and services.



That we are a service firm, which says that we exist for the sake of the customer and not vice-versa, and that we will work toward customers' perceiving customer service--in the broadest sense--as competent and obliging.

That we offer services in the communications and money transfer field.

That we are an efficient and well functioning firm, which implies that we operate an up-to-date and debureaucratized firm businesswise, with the fewest possible resources and with the greatest operating reliability.

8985

CSO: 5500/2684

DENMARK

#### BRIEFS

FIRST FOREIGN SATELLITE TELEVISION--Satellite TV in Odense. Odense will get the opportunity of being the first city in Denmark to receive foreign TV by satellite. This will happen as early as in a couple of months and it will then be possible to view in Odense 11 foreign advertising-financed programs from England, France and Luxembourg, received from the English Music Sky Channel. It is not Odense's local TV broadcaster, FKT--Funen Municipal Telephone Company, which is directly in charge of this, but a local satellite TV club which has 33,000 members. But it is via a parabolic antenna at the FKT station in Bolbro near Odense that the satellite signals are to be received. It is a question of an experiment which was agreed upon with the Postal and Telegraph Service, and this will surely rub off onto other satellite TV clubs around the country. [By Ho] [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 24 Jun 85 p 3] 8985

CSO: 5500/2684

FEDERAL REPUBLIC OF GERMANY

BRIEFS

FRG: PRIVATE ACCESS TO SATELLITE TV-- Bonn-- Since 9 July 1985, private parties and organizations in FRG can install parabolic antennas to receive television programs broadcast by the ECS and Intelsat satellites. Until now, this right was reserved to the Mails Ministry, which however points out that private reception of these programs will be authorized only in those regions of FRG which are not equipped with cable television. Reception of satellite broadcasts requires a parabolic antenna with a minimum diameter of 1.80 m, which will cost about 10,000 DM (30,000 francs) for a private installation, and between 20,000 and 50,000 DM (60,000 to 150,000 francs) for a collective installation. The reception is subject to a monthly tax of 20 DM (60 francs). Among the programs which it will be possible to receive, are the two German channels ARD and ZDF, 3-SAT (a joint channel for ARD, ZDF, the Swiss television SRG, and Austrian television ORF), the French language channel TV5, and RTL-Plus. [Text] [Paris AFP SCIENCES in French 11 Jul 85 p 28] 11,023

CSO: 5500/2854

FINLAND

DANISH TELEPHONE EQUIPMENT THREATENS ITT, ERICSSON MARKETS

Helsinki HUFVUDSTADSBLADET in Swedish 6 Jul 85 p 10

[Article by Sigyn Alenius and Richard Brander: "Danish Telephone Gains Markets in Finland"]

[Text] Copenhagen, Helsinki--the telephone "Dan-Mark" from the Danish company GNT-Automatics has become a serious threat to Ericsson, ITT and Siemens in the Finnish telephone market.

It is believed at GNT-Automatics in Copenhagen that in a few years the export to Finland may reach 50,000-60,000 telephones annually. That would mean a market-share of about 25 percent.

GNT has already received an order for a trial consignment to Finland of 4,000 instruments.

The importer is Heltel Oy Co, a subsidiary of the Helsinki Telephone Association.

Today Ericsson's share of the market is about 50 percent. ITT and Siemens share the remainder. All three have plants in Finland and competition from abroad has so far been marginal because of stringent Finnish telephone standards.

The lack of competition has made telephones rather expensive for the 58 telephone associations in the country.

New Standards

Earlier this year, new standards were established by a cooperative committee consisting of representatives from the telephone associations and the Post Office. Among members of the committee were Pekka Tarjanne, director general of the Post and Telegraph Authority, and vice-presidents from the leading telephone associations.

The new standards constitute more liberal interpretations of international technological regulations. At the same time they are paving the way for the import of telephones to Finland.

### Bids Were Requested

Last spring the joint purchase cooperative for the telephone associations asked for bids on telephones. The deadline for the bids was last Friday.

This time the purchase cooperative did not apply only to the three dominant companies.

Kurt Nordman, vice-president of the Helsinki Telephone Association (HTF) confirms that bids were requested from the Danish GNT, but he does not want to disclose which other manufacturers were approached.

"We have asked for bids from Ericsson, ITT, Siemens and GNT. Furthermore, we have asked for bids from another Scandinavian manufacturer and from some others on the continent," says Nordman.

The purchase cooperative will decide on the bids no later than the beginning of fall.

### Optimism at GNT

The management of GNT in Copenhagen views its chances very optimistically. At this stage, Nordman at HTF does not want to decide, but he states that "GNT's instrument seems to be cleverly made and looks neat."

Everything points to the fact that GNT's "Dan-Mark" will be found on the shopping list of the purchase cooperative.

Surely HTF would not form a subsidiary (Heltel) without being sure that buyers exist. Heltel plans to start seriously marketing the "Dan-Mark" in the fall.

### Worry at Ericsson

Jaakko Riihimäki, sales-manager at Ericsson, concedes that they are "sort of worried, but that the company trusts to its 100-year tradition in the country and to its high quality.

"We meet all old and new standards and I believe that the telephone subscribers trust us," says Riihimäki.

He concedes, however, that the reduced technological specifications for the construction of telephones may make new companies try to enter the market.

### ITT Hopes for the Best

P.-J. Lindholm, vice-president of Standard Electric Puhelinteollisuus Oy ITT, says that, even previously, price has been a noticeable factor in competition between Ericsson and ITT.



"With the new standards the telephone associations will probably want to increase their level of service by offering a greater choice of telephones," says Lindholm.

ITT has made its bid and "hopes for the best." According to Lindholm, ITT does not primarily compete by price but rather by offering a good product.

"Our intention is not to increase our share of the market at any cost," he says.

#### Ericsson Owned

100 percent of the Danish GNT-Automatics is owned by the also Danish "Store Nordiske Telegraf." Ericsson owned 49 percent of the shares earlier, but sold out to "Store Nordiske" at the beginning of the year.

GNT's annual sales in 1984 were 400 million Danish kroner. A third of the production was exported to the United States, the Middle East, Japan, Sweden and Ireland, among others.

#### Great Density

As far as telephone density is concerned, Finland is eighth in the world. We have 59.2 telephones per 100 persons.

Sales of new telephones amount to about 200,000 per year. A standard telephone costs about 300 markkas. According to this, the market is worth 60 million markkas per year, and when you consider the various special telephones, which are more expensive, annual sales could be around 100 million markkas.

GNT in Copenhagen states that within a few years the export to Finland will amount to "an eight-digit figure."

12339

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FRANCE

SPOT-IMAGE INVESTS \$6 MILLION IN U.S. IMAGE PROCESSING CENTER

Paris ELECTRONIQUE ACTUALITES in French 22 Mar 85 pp 1, 17

[Article by H. Pradenc]

[Text] The first company ever to commercialize satellite images, Spot-Image has been using various agreements since 1982 to build its international distribution network so as to exploit the data which will be supplied by the French satellite Spot, which should be launched next October.

In order to be in place on the North American continent, which represents 40 percent of the world market, and on which serious competition is building up from its counterpart Eosat, the French company will invest \$6 million in image processing equipment for a center in Washington, where it has established its subsidiary Spot-Image Corporation.

Earth observation for civilian purposes has moved beyond the experimental to a commercial phase, even before the launching of Spot 1 (Earth Observation Probe Satellite). Industrialists such as SEP, whose Image Processing Division participates in the ground portion of the Spot program, have noted a renewed interest on the part of some countries for receiving and processing equipment. The assurance that the launching of Spot 1, scheduled for 3 October, will be followed by the orbiting of Spot 2 in January 1987, and that preliminary studies have been started on the next two satellites, may have convinced those countries which retained doubts about the endurance of a remote sensing system in space.

Another factor is the knowledge that the American Landsat program, which materialized with the launching of a first satellite, and which had its share of uncertainty, will be continued by Hughes and RCA within Eosat, taking over from NASA. By the same token, Spot-Image which is now the only one on the market with commercial distribution of satellite images, will have to face serious American competition around 1990, even though it is starting out with some major advantages, notably the fact that Spot images can cover an area of 117 km by 60 km with a definition of 10 m in the panchromatic mode and 20 m in a multispectrum mode. The price of a complete digitized picture would be \$1000, which is barely more than a Landsat image, for better quality. Lastly, Spot-Image is betting on the speed of its deliveries and on the availability of a catalog which can be examined remotely at any time.

At launch time, five stations will be ready to receive the images. The two major ones are located in Toulouse and at Kiruna in Sweden; it is worth noting that Sweden and Belgium have each a 4 percent participation in the Spot program, with the remaining 92 percent coming from France. One station is installed in Bangladesh and two in Canada. The acquisition capacity of the two European stations will be 500,000 images per year. At the beginning, processing facilities in France and Sweden will make it possible to place on the market 50,000-60,000 images per year.

#### SEP Consulted

An investment program of \$6 million for 1985 and 1986 is planned, to process directly in Washington images supplied by the Canadian stations. SEP was consulted for this market, which will use local subcontracting and American computers. During the second half of this year, a connection will be established between Toulouse and the American center for viewing the catalog. As we can see, the United States is a prime outlet for remote sensed images; it corresponds to 40 percent of the world market in this field. The American subsidiary of Spot-Image was created in the same year the company was founded. Its capital will go from \$150,000 to \$1 million at the end of this year, and it will employ 20 people (six at present) by the same date.

The future installations in Washington will be equivalent to those of CRIS (Center for Satellite Image Processing) in Toulouse. Except for the computers, which will be American (Solar 16/75 in Toulouse), the center will be equipped with a Vizir laser beam imager built by SEP. This company, which was the prime contractor for the Toulouse receiving station, was assigned the construction of a station in Brasil. Australia, China, Pakistan, and India are other potential customers.

The Spot system, consisting of two satellites, as well as receiving and processing stations in Toulouse, represents an overall investment of 4 billion francs. The receipts from Spot-Image sales must cover the cost of Spot 2, 3, and 4, corresponding to a 12-year investment amortization. We might point out here that 39 percent of the Spot-Image capital is held by CNES (National Space Studies Center); Matra and SEP have each 7.5 percent; the Belgian and Swedish participations amount to 10 percent of the total; and those of IFP (Frerch Petroleum Institute), IGN (National Geographic Institute), and BRGM (Geologic and Mining Research Bureau), are also 10 percent.

Matra is the prime contractor for Spot 2. This satellite will be different from its predecessor in that the Fairchild CCD detectors will be replaced with Thomson components, and that it carries a precise localization experiment (DORIS) added to the platform. On the other hand, significant improvements will be made to versions 3 and 4, which after 1990 will have to face the American competition. They will consist of a longer lifetime to reduce image cost, the use of an Enerter-Schlumberger on-board recorder, as well as the addition of new detectors designed for the intermediate infrared band. The launching of Spot 3 is planned for the second half of 1990.

In the Spot program, Alcatel-Thomson-Espace is contracting for the payload remote sensing subsystem, and supplies the electronics for the visible-band high resolution instrument (HRV, built by Matra), as well as the remote sensing-remote control servo device. This company is thus building 20-25 percent of the Spot program.

11,023

CSO: 5500/2690

FRANCE

## EARTH SEGMENT FOR SPOT REMOTE-SENSING SATELLITE

Paris L'USINE NOUVELLE in French 28 Mar 85 pp 6-7

[Article signed M.C.: "Earth Observation: 5 Years Ahead of the United States"]

[Text] The earth-observation satellite, Spot, to be launched by Ariane on 3 October, is now undergoing acoustic and vibrational environment tests at Inter-space, in Toulouse.

The first of a series of at least 4 satellites that will provide continuous observation of the earth for the next 10 years, Spot 1 required the installation of specific ground-support systems. A profitable investment, according to the CNES [National Center for Space Studies] which, through a marketing company, is targeting the world market for space images to be used for crop monitoring and forecasting, geological and mining prospection, mapmaking, etc. These images cost two to four times less than aerial photographs!

### A Catalog of 60,000 Images/Year to Tempt 25 countries

The Spot Image Company, created in 1982 and 39 percent of whose stock is held by the CNES, is responsible for marketing the images obtained by Spot to the tune of FF 9,000 on magnetic band and FF 2,250 on photographic film for a scene 60 x 60 km (opposite, a Spot simulation of the city of Toulouse [not reproduced]). The company will offer 60,000 images per year through its catalog, but it will also be able to provide a made-to-order image of any particular earth zone within 24 hours, simply by requesting the mission control center to program the satellite flight computer accordingly.

Spot Image possesses powerful data-processing and photographic resources and it has already set up a network to distribute Spot data in 25 countries. It has even created a U.S. subsidiary, Spot Image Corporation, which will have a staff of 20 already by the end of the year and will be equipped with the same image-processing means as the Toulouse company.

Spot Image is also responsible for contractual relations with the countries that have decided to acquire their own Spot-data direct receiving stations, i.e. Sweden, Canada and Bangladesh.



## Space Images: Details 10 m Long

The Spot satellite, which was built by the CNES as a prime contractor, in collaboration with Belgium and Sweden (each contributing 4 percent to the project), will boast several world firsts for a civilian satellite: ground resolution of 10 or 20 m (compared with 30 m with U.S. satellites); use of two electronic multispectral scanners (elimination of the vibrating mirror, a cause of mechanical failures); production of stereoscopic images making it possible to distinguish differences of 3 to 5 m; possibility of observing the same point every 60 hours at the latitude of France. Spot is the heaviest of all French-made satellites (1,830 kg), and it has a span of 15 m when its solar panels (made by Aerospatiale) are extended. It was built with the participation of 25 companies, including MATRA [Mechanics, Aviation and Trac-tion Company] (the prime contractor for the platform, the photographic equip-ment and overall integration) and Alcatel-Thomson Space (for payload telemetry).

## Spot's Eye: 6,000 CCD [Charge-Coupled Device] Cells

At its apex, Spot is carrying 2 identical telescopes 2.5 m long and weighing 250 kg. Each of these so-called HRV (visible high-resolution) instruments, whose optical components were made by REOSC [expansion unknown] and Angenieux, is equipped at its focus with very small photodiodes (side length: 1.3 microns) that convert the light signal emitted from the ground into an electrical sig-nal. The 6,000 charge-transfer devices (CCD [as published]) are mounted in a row and analyze at once a 60-km wide line of the earth landscape perpendi-cular to the satellite track. These four linear arrays of CCD are made by Fairchild and, already on Spot 2, they will be replaced by detectors made by Thomson in Grenoble.

## 9 Seconds to Record an Image

The antenna with an 8 m diameter set up at Aussaguel near Toulouse will re-ceive transmissions from Spot (50 Mbits/s). The space-image receiving station associated to the antenna--which was made by SEP [European Propulsion Company] in collaboration, among others, with CSEE [Electrical Signals and Projects Company] and Starec--will convert the 8-MHz signals representing the images taken by Spot into 700-kHz signals. After demodulation and synchronization, the signals will be stored on magnetic tape by high-density (30,000 bits/inch) 28-track Schlumberger recorders. Each image requires a nine-second recording. The raw data thus gathered will be retransmitted to the Space Image Rectifi-cation Center.

## Two Rooms for Preprocessing and Remote Control

Built by SEP as a prime contractor, the Space-Image Rectification Center (CRIS) is now undergoing acceptance. Equipped with 8 Solar 16/75 computers and specialized peripherals (data-processing tape winders, film reproducers, etc.), the center will archive daily some 1,400 scenes photographed by Spot and retransmitted through the Aussaguel [France] and Kiruna (Sweden) stations. The center will localize them, estimate their quality (cloud cover) and store them (a library of 10,000 magnetic tapes is planned). At the request of the

Spot Image marketing company, the CRIS will be able to preprocess daily 70 to 100 space scenes (radiometric and geometric image corrections).

Every day, at the time of the first night passage of Spot above Toulouse, the Mission Control Center (CCM) will remote-control the programming of the satellite flight computer (SAAB [Swedish Aircraft Company]) for the next 24 hours (starting the satellite photographic equipment and flight recorders, pointing the mirrors, etc.). The center was built by the CNES as a prime contractor and is now being equipped; it will use Solar computers and software designed and developed by MATRA.

The CCM will also be responsible for analyzing any failure that could occur on the satellite and determining its causes. A satellite simulator, also made by MATRA and now used by the center for testing, will reproduce any failure occurring on the satellite and help find solutions.

9294

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FRANCE

FRANCE'S ALCATEL THOMSON SETS TELECOM PRIORITIES

Paris ELECTRONIQUE ACTUALITES in French 28 Jun 85 pp 1, 14

[Article by D. Levy]

[Text] The acquisition of Thomson Telecommunications by CIT-Alcatel will become effective on 1 July, creating a new entity with 25 billion in revenues and nearly 50,000 employees. Having grown to be the world's fifth largest telecommunications company, the new industrial group, named Alcatel Thomson (or simply Alcatel), will single-handedly determine the future of French telecommunications, which should give an idea of the weight carried by the orientations of our "national champion." And if the magnitude of the market sought by Alcatel Thomson can only be measured on a world scale, we are forced to observe today that its impact is very uneven in its three favorite areas: France, the United States, and the rest of the world. What means will the company have on hand to advance on these three fronts? What alliance policy will it use (are there plans for an agreement with ATT-Philips)? To a large extent, Alcatel Thomson's success or failure will depend on the priorities assigned to one or another of its actions.

The Thomson-CGE union in telecommunications, initiated in September 1983, will culminate with the merger of CIT-Alcatel and Thomson Telecommunications (which combines all the civilian telecommunication activities of Thomson-CSF). The acquisition of the latter by the former will take effect on 1 July. At the conclusion of the operation, CGE will own more than 51 percent of the new entity, Thomson-CSF about 15 percent of the shares, with the rest being offered on the stock market.

Thus, about 18 months earlier than expected (the agreement stipulated that the merger occur before 1 January 1987), we will witness one of the largest restructurings of the entire French industry. On the eve of the merger, everyone wants to salute the remarkable execution of the transaction. Operational organization was completed several weeks ago with the nomination of Messrs Guichet and Imbert, two Thomson-CSF veterans, to head Alcatel Thomson's switching and transmission activities, respectively; Mr Payard, director general, was put in charge of Alcatel Thomson International, and Mr Suard, director general, will be responsible for the group's management.

## What Product Policy?

At the same time, Mr Pebereau, CEO of CGE and CIT-Alcatel was busy with rear guard action, meaning the French public market, by seeking an understanding with PTT. And while the latter did grant a guaranteed three-year plan for 1985-1987 orders (with commitments of about 12 billion per year for the first two years), thus assuring plant work loads (the modernization rate of exchanges will be accelerated), it rejected the product strategy--which reduced the exchange models to the E 10S and its American version, the E 10 5--by imposing the development of the E 10B and the MT 25.

PTT based its decision both on the size of the E 10B and MT inventory--after filling the 1984 orders, France will have 314 E 10B exchanges for a total of 5.5 million lines, and 209 MT 25 exchanges for 4.5 million lines--and on the sales of these two types of exchanges in nearly 50 countries. "It's a common sense solution," states the agency, while acknowledging that it is more expensive than the proposed alternative.

Will Alcatel Thomson sink under the weight of development costs for four exchanges? Analyzing the products, the manufacturer notes that the E 10B and the MT 20 have more than 50 percent of equipment in common, to the extent that the company--at the request of customers aware of the introduction of IDSN (Integrated Services Digital Network)--henceforth no longer offers to export anything other than its digital connection unit (CSN), which is shared by both exchanges (as well as by the E 10S). The first CSN will be put in operation in the next few months in Peking. In France, the CSN orders planned for 1988 could be advanced.

On the other hand, the E 10S and the E 10 5 are not two different products, but the fruit of a common development, their combination making it easier--in Alcatel Thomson's expectations--to amortize the development of these products for the American market and for the rest of the world.

When placed in a proper perspective, the key problem of the Alcatel Thomson products thus no longer appears insurmountable. The future of this line is a matter of "natural selection": the sooner the E 10S/E 10 5 takes root, the sooner the E 10B/MT will wither. Hence the importance of Mr Pebereau's penetration of the the United States market.

## Towards an Agreement With ATT-Philips?

The American market is certainly attractive (one-half of the world market) and would be ideal for raising Alcatel Thomson's world share from the current 4.6 percent to 6 or 8 percent around 1988, a figure which the company estimates as the minimum which would allow it to develop while maintaining its technologic independence. Not only that, but out of the present 4.6 percent France represents more than 3 percent, and its market is beginning to be saturated!



But the American market is difficult. The only foreign manufacturer (is Canada foreign in the United States?) to succeed is Northern Telecom. Hence the idea of joining forces with a partner; following the customary maneuvering, an agreement might be forthcoming with ATT-Philips. According to the goals established by the French manufacturer, this alliance could facilitate Alcatel Thomson's penetration in the United States (aimed at \$200 million around 1989) and pool certain development costs. Moreover, Alcatel Thomson would control TRT's radio beam activities, even though DGT (General Directorate for Telecommunications) is careful to avoid the formation of a monopoly in this field in France. By the same token, a place would be cleared for ATT-Philips products on the French market.

The third market considered by Alcatel Thomson is the rest of the world, comprised of Europe (where the systems have already been selected and all that can be expected are joint technical agreements such as the ones concluded by the French with Siemens, Italtel, and Plessey), developing nations, as well as large Alcatel Thomson customers such as India and China.

Within about ten years, the E 10 and MT models have conquered the exchange market in about 50 countries. That is a performance to be applauded. However, unlike the Swedish Ericsson, Siemens, or ITT (which it is true, did enjoy a tradition of longer standing on international markets), Alcatel Thomson is weak in its international installations. One of the group's priorities will be to remedy this.

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CSO: 5500/2854



FRANCE RETAINS ONLY 50 PERCENT OF TDF-1 OPERATING COMPANY

Paris LIBERATION in French 8 Aug 85 p 6

[Interview with Jacques Pomonti, president of the National Audiovisual Institute, by Philippe Kieffer: "Jacques Pomonti Discloses the Plans for the TDF-1 Satellite"; date and place not specified]

[Text] In an exclusive interview with LIBERATION, the president of the INA, who was asked by Laurent Fabius to create the company that will operate the direct TV satellite, presents, among other things, the potential partners. One noticeable absence, that of Luxembourg's CLT [Luxembourg Television Broadcasting Company].

The future of the French audiovisual industry does not involve merely the creation of private TV networks "on the ground." In July 1986, France will launch a satellite whose four channels will make it possible to bombard all of Europe with sounds and images. For 8 months now, Jacques Pomonti, the president of the INA (National Institute of Audiovisual Communication) has been working, at the prime minister's request, on the creation of a TDF-1 operating company. There are still many unknowns as far as channel allocation is concerned, but Jacques Pomonti is now making public the content of his report on the creation of that company. A major surprise, the CLT (to which, in principle, two channels will be allocated) is not among the shareholders.

[Question] Eleven months before it is launched by the Ariane rocket, the French TDF-1 satellite is still a sort of "unidentified object to be put in orbit." There are still many uncertainties as to who the operators of the four channels of this direct TV satellite will be. And the most contradictory rumors are circulating concerning the results of the mission that was entrusted to you by the French government. Where do we stand now?

[Answer] I do believe that it is now time to shed some light so as to understand the position and future of TDF-1. By a letter dated 26 December 1984, the prime minister, Laurent Fabius, asked me to create a company for the commercialization of TDF-1, with French and foreign (European or non-European)

partners, in which the French state would have a 34-percent interest (i.e. a tie-up minority interest), the rest of the capital being open. This company is to be in charge of negotiations concerning the available capacities and future programs of the satellite.

[Question] In other words, your mission was to determine "who does what" on TDF-1?

[Answer] That is correct. That was stated in the prime minister's letter; and the recent Cabinet meeting of 31 July stressed again that the satellite operating company "will enter into" negotiations with the operators.

[Question] Your report on the creation of this company was submitted to the prime minister on 10 June. What is its content? Who are the main partners?

[Answer] The report includes the breakdown of the company's capital, which is as follows: 50 percent French and 50 percent European. As the government wished, the state's share will amount to 34 percent. And the remaining French-owned 16 percent will be private capital provided by Aerospatiale (5 percent), the Agricultural Credit Bank (5 percent) and various financial institutions (6 percent). As for the foreign-owned 50 percent, they will come from various partners, namely the Robert Maxwell group (20 percent)--the owner of the DAILY MIRROR--with whom we have been negotiating since January, Mr Silvio Berlusconi's Italian group (8 percent), and Philips (5 percent). Two Luxembourg financial institutions, Sofilec and Narmer will share the remaining European-owned 17 percent.

[Question] The CLT (Luxembourg Television Broadcasting Company), which is known to be directly interested in the TDF-1 project since it will in principle receive two of the four channels--one for French, one for German--is not included in this "ontage" [as published]. Why?

[Answer] I do not know; and I wish to make this very clear. Four times, I do say four times, I officially asked the CLT to join this company. Twice in front of an official delegation headed by Jacques Rigaud (the CLT managing director) and twice directly in front of the CLT board of directors. I was never turned down, but I never got an answer. The CLT, which has an obvious interest in satellite television, seems to hesitate... Some say that this has to do with their projects on the ground (they are now considering sharing a multi-town frequency with TMC [expansion unknown] for an "all purpose/general public" television channel). That is all I know. I am not to blame for their non-representation.

[Question] Let's come back to the breakdown of the satellite operating company's capital. What were the orientations that led to these decisions. What are the amounts on which all the "actors" of the project agreed?

[Answer] The company will be created with an initial capital of FF 30 billion, to be "raised" to FF 600 billion by the time the satellite is launched, so as to complete the overall project under the best possible conditions. This breakdown of the capital is the direct result of what I was asked by the prime minister: the state should not own more than 34 percent. It is therefore a

private company. As such, it will have to balance its accounts and try to make profits during the satellite "lifetime" (the "shortest" estimated lifetime of TDF-1 is seven years). We may consider that this is a "venture" capital investment, involving even a high degree of risk since, like everything that has to do with space, it is a formidable technological challenge. In addition, we are in a field, that of television, that is highly competitive. I had to find capital; that is what I did. Any other arrangement could only cost a lot more to the French state.

[Question] Can this setup assure the political and economic viability of the TDF-1 operation?

[Answer] It is a setup that offers two main characteristics. First, and that was important to me, it ensures that the prime contractor will be France (50 percent); then, I believe that we managed to give it a European dimension. Europe represents from 200 to 300 million potential TV viewers whom we shall be able to "reach" by adopting the D2 Mac Paquet standard that makes it possible to broadcast in several languages. I am also a corporate executive and I know that in a venture of this sort there can be no guaranteed success; that the European market is an indispensable prerequisite to success. Besides, this project is in some way the first material expression of "Eureka" (the technological Europe wished for by Francois Mitterrand).

[Question] Who will "ride" TDF-1? The government's decisions have caused some to say that "the Pomonti plan was buried"? Do you get the feeling that you are being "forgotten"?

[Answer] Nothing will be buried; it is a newspaper's error: there is no information, no indication to substantiate this interpretation. I hope I am making it clear. It is yet too soon to say who will "ride" the satellite. As you know, European audiovisual production is not in a good position. We, especially the French, are buying a lot of programs from the United States, and competition between various channels does not help. The satellite will bring together European creators and producers, and it may make it possible to reverse this trend. It offers an opportunity to become aware of the fact that satellite broadcasting knows no borders. And Pierre Desgraupes is right, Europe has a formidable concentration of talents that should enable us to become producers for the world.

[Question] But, considering the high level of risk you just mentioned, each of the future operators will want to make its investment profitable with programs that will probably not be very "cultural"...

[Answer] That is true, each will want the operation to be a success. But I am confident that we shall not have as many "Dallases" as we have channels. There will be a minimum of harmonization among operators. As for culture, I would prefer not to "park" it. I would like to see Desgraupes-type programming on all four channels.

[Question] What are the industrial stakes? How do you think European countries will progressively equip themselves with the parabolic antennas required for reception?

[Answer] In this case, too, we must have a European dimension. It is a market of FF 100 billion involving the production of 20 million antennas until 1992. This represents years of assured production for European manufacturers, and a lot of new jobs.

[Question] Apart from the countries you mentioned, are other countries interested in the project?

[Answer] Indeed, many are; many U.S. firms would be willing to join and broadcast their programs, no matter how much leasing a channel would cost them. Closer to us, the Spanish are eager to join us. Adding Spanish to English, French, German and Italian could make it possible, some day, to produce for Latin America, which is also a major market.

[Question] When will the final composition of the "TDF-1 family" be known, the identity of all operators and the parts they will play?

[Answer] All should be settled at the latest by the end of this year. The satellite is scheduled for July 1986; the first broadcasting tests will take place in September, and full use of channel operation must be ensured for 1 January 1987. In the immediate future, the board of supervisors and board of directors of the Company for the Study of Direct Satellite Television will meet on 29 August. This will mark the final implementation of the "operating company," in accordance with the prime minister's request and with the decisions made at the Cabinet meeting of 31 July. The company will have to continue and conclude (at the latest by the end of 1985) the negotiations already started with the various potential operators. And I am convinced that we shall win the challenge.

9294

CSO: 5500/2856



ICELAND

AGENCY OFFICIAL SEES POSTFAX REVOLUTIONIZING POSTAL SERVICE

Reykjavik MORGUNBLADID in Icelandic 29 Jun 85 p 11

[Article: "Postfax Technology Will Be a Revolution for Postal Service"]

[Text] The Icelandic Post and Telegraph Office has begun two new types of service for Icelanders, announced at a recent press conference. On the one hand, we will report here on so-called postfax service and, on the other, a new change in postal service whereby it will be possible to send so-called priority mail, which will be transported between countries as rapidly as possible.

Postfax technology was first put into service in Iceland about a year ago. The technology makes it possible for users to send pictures, letters or printed materials between points in a very few minutes, as emerged from the press conference. Costs of each transmission are between 218 kronas and 630 kronas a page, A4 size. Each equipment has a so-called telex number and anyone knowing it can send material from another postfax equipment wherever it is. The equipment changes the material sent much like a phototelegraphy machine and transmits it through a line. According to Kristjan Helgason, equipment of this type has been priced by the Icelandic Post and Telegraph Office and an enterprise will need around 300,000 kronas to purchase it. In order to make it possible for individuals and institutions to use such equipment, however, all services in this area will naturally be obtainable in the Reykjavik Post Office and at other places in Iceland. "This equipment will mark a revolution for the postal service," said Helgason.

Priority mail service will be offered by the new Armuli Post Office. According to a spokesman of the Post and Telegraph Office such service has been begun in a much shorter time than expected. Postal fees for priority mail are 2,500 kronas for the first kilo and 200 kronas for each kilo after that.

It also emerged from the meeting that there is great interest in the new Post and Telegraph Office in Armuli. All post office services and distribution will now be much easier than before. Each day some 130,000 letters will be delivered to enterprises, 3,000 parcels and a similar



number of registered letters. Postmaster Björn Björnsson noted, however, that more still needs to be accomplished before the public will have adequate access to the postal system; for example, it is very important that postal number codes are used so that letter sorting can be done entirely on that basis.

Sigurdur Ingason said in conclusion that the offices now occupied by the Post and Telegraph office will most likely be adequate until the turn of the century. This makes it possible to be concerned with other things besides building construction and the office would like to improve services to Icelanders by half during the immediate future.

9857

CSO: 5500/2849

ICELAND

TELECOMMUNICATIONS AGENCY BUYS FIRST FIBER OPTIC CABLE

Reykjavik MORGUNBLADID in Icelandic 20 Jun 85 Sec B p 1

/Article: "The Icelandic Post and Telegraph Office Has Purchased Its First Fiber Optic Cable"

/Text/ The Icelandic Post and Telegraph office has completed the purchase of a 30 km long fiber optic cable, the first fiber optic cable to be installed in Iceland. The cable to arrive in Iceland has been manufactured by Norsk Fiberoptikk Inc., which is owned by the Norwegian electrical power enterprises and is a daughter firm of Norsk Kabelfabrikk in Drammen.

According to Bergthor Halldorsson, engineer in the Technical Division of the Icelandic Halldorsson, engineer in the Technical Division of the Icelandic Post and Telegraph Office, the cable will be used to connect the most important telephone stations here in the capital district and will be installed between the Reykjavik Central Station and the Muli Station and beyond, up to Breidholt and likewise to Kopavogur, where it is anticipated the line will be connected through microwave transmissions to the Keflavik Airfield.

Halldorsson said that there were 6 fiber optic cables in all within the cable and each of them can transmit 1,920 telephone messages or 2 television channels. However, only 2 will be used at first. At full capacity, however, this will be a 140 Mb system.

Halldorsson said also that this is only the beginning in the technical development of the Post and Telegraph Office in this direction. Fiber optics technology is developing rapidly at this time and in the future efforts will be made to augment the system so that it can support four times as much per line. Halldorsson said likewise that costs for a fiber optic line have been decreasing steadily and have fallen to such a degree that the Icelandic Post and Telegraph office sees no economic choice but fiber optic cables. Even though they are more expensive than copper wires, the transmission capacity of a fiber optic cable is many times that of a copper wire cable.

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CSO: 5500/2849

LUXEMBOURG

COMPETITION STRONG IN DIRECT BROADCAST MARKET

Brussels TELEMOSTIQUE in French 30 May 85 pp 36-42

[Article by Théo Pirard: "With the GDL-SES Project, Luxembourg Will Cover Europe with TV Channels from Space"]

[Text] Since 1 March, the Grand Duchy of Luxembourg has an important, new private company on its territory, the European Satellite Company [SES], with 330 million Luxembourg francs (\$5 million) in registered capital. The objective is to operate a powerful satellite which can cover Europe with 16 TV channels in 1986.

In January, the Luxembourg government of Jacques Santer decided to go ahead with the GDL [Grand Duchy of Luxembourg] project. By late 1986, the Grand Duchy will have a teledistribution satellite in geostationary orbit (at a distance of 35,800 km from the equator) covering the European continent. The launching and the operation of this satellite and its control and transmission stations on earth will be entrusted to a Luxembourg company which has been set up especially for this purpose: the European Satellite Company [SES] with 330 million Luxembourg francs in capital. Last year, the European and particularly the French and German media worried about Luxembourg's willingness to become the "European Hollywood" via satellite. Thus, this ambitious project (with an estimated cost of \$180 million) was to be set up under the auspices of the Coronet Group, which is located in Luxembourg but under American influence. Doctor Clay Tom Whitehead of Los Angeles, a respected expert in telecommunications satellites and television, took part in the development of the GDL system as technical adviser to Pierre Werner, the then Prime Minister of Luxembourg (until July 1984).

This American role in the Coronet Study Group got a bad reception in Europe, particularly in France, where the Socialist government denounced the Coca Cola satellite [as published]. Paris was to make every effort to short-circuit the GDL-Coronet initiative by removing its best client, the CLT [Luxembourg Television Company] with its two Europe-oriented channels, RTL Television and RTL Plus. This was all the easier since the CLT, which is controlled by French shareholders, was not very pleased with the

emergence of potential competitors in Luxembourg. RTL even thought its monopoly in Europe would be infringed by new commercial television channels. The Luxembourg government, however, had given priority position on 3 of the satellite's 16 TV channels to CLT-RTL in an attempt to appease this obstinate partner, who is the main taxpayer in Luxembourg. Here the French, thanks to the good offices of Télédiffusion de France (TDF), saw an opportunity to "offer" two powerful repeater-transmitters on the TDF-1 direct television satellite; thus promising to RTL Television and RTL Plus a market of at least 100 million viewers.

#### Coronet in Action

France, with its TDF-1 system of television satellites, was determined to raise the bidding against the Luxembourg GDL system of teledistribution satellites. The Federal Republic of Germany, which in the beginning was not hostile at all to the GDL project -- undoubtedly because of the close friendship between Chancellor Kohl and Prime Minister Werner -- finally turned against it. Thus, there was a current running between Paris and Bonn to electrocute the GDL project. Meanwhile, politics had changed in Luxembourg following the legislative elections of 17 June 1984, which brought a new coalition to power. The government of Jacques Santer, the successor of Pierre Werner, was formed by Social Christians and Socialists, the Liberals being back in opposition. In the second half of 1984 this new political context gave the GDL project, entrusted to Coronet, another turn. And there was no time to lose if the GDL system was to be operative in 1987, at the same time as the TV-Sat and Copernicus systems (West Germany), TDF-1 (France) and Eutelsat (with three satellites in geostationary orbit).

During the last quarter of 1984 the events involving Luxembourg's reach into space gained momentum.

On 26 October Luxembourg and France signed a "non-aggression agreement." Jacques Santer, the president of the Luxembourg government, and George Pillioud, secretary of state for communication techniques, approved of a declaration which stipulates the "ten commandments" for perfect understanding in starting European television via satellite. In fact the Luxembourgers and the French reached an agreement on the operating conditions of the TDF-1 satellite: CLT-RTL could rent two of the powerful repeater-transmitters on the French satellite. Luxembourg, for its part, promised not to use the GDL system to transmit French and German commercial channels to the rest of Europe. The French media did not hesitate to announce that the GDL project had been buried by TDF-1.

During his presentation of the 1985 budget on 20 November 1984, Prime Minister Mr Jacques Santer put things right saying, "Since doubts have been raised, I want to repeat that our agreement with France does not mean that we are abandoning the idea of a Luxembourg satellite using Luxembourg's frequencies." Two days later, to confirm its intentions, the Coronet



Study Group victoriously announced that the Swedish group Beijer had become the first investor in the GDL system. This victory, however, entailed an exclusive right on the distribution of TV channels in Scandinavia.

In December Mr Santer's government discreetly withdrew the management of the GDL project from Coronet. Paul Zimmer, adviser to the prime minister, explained: "We have been misled by Coronet's lack of success with European investors and its commercial practices 'made in U.S.A.' The conditions presented to investors did not have the government's green light." On 1 January 1985 the Coronet Study Group became Coronet Finance, a kind of holding company intended to finance the GDL system and to speed up its development. The initiative was taken by Doctor Whitehead, who had the financial support of Beijer (Sweden), Home Box Office (U.S.A.) and of a mysterious Franco-Swiss investor. He also counted on winning over other potential investors. Doctor Whitehead was worried about the delay in the control of the satellites and their launching but, above all, he did not want to lose his hold.

For the Luxembourg authorities had evaluated the potential investors and realized that the GDL project would succeed if it remained entirely European. Hence their willingness to set up the GDL system through the European Satellite Company which consists of European capital and is located in Luxembourg. Thus, on 1 March 1985 the SES came into existence, with the objective of emphasizing the European dimension and of functioning as a reliable research center and control station. Its \$5 million in capital came from the Banque Générale du Luxembourg, the Banque Internationale du Luxembourg, the Caisse d'Epargne de l'Etat, the Dresdner Bank, the Deutsche Bank, the Swedish group Kinnevik, the Danish company Kirby, the Luxembourg holding company Natinvest, the holding company RITA [expansion unknown] (with French shareholders), the Belgian Société Générale and the Luxembourg SNCI [expansion unknown].

#### A Satellite in 1986?

SES had not yet been fully established when, to everyone's astonishment, RCA Astro-Electronics, one of the world's main constructors of satellites, announced that it had signed a contract with Coronet Finance to supply two big 16 TV channels satellites. In addition, Coronet Finance announced that Arianespace had been asked to launch two satellites between September 1986 and April 1987. All these contracts have been concluded without the consent of the Luxembourg government. According to Mario Hirsch, the public relations officer of Coronet Finance, "the contracts with RCA and Arianespace are about to be approved and they are expected to stimulate the GDL project considerably." But it still is unclear to what extent SES will be willing to take over the contracts signed by Coronet Finance.

The choice of the "made in U.S.A." satellites for the GDL project, which will be developed and operated by the SES, seems obvious. As the American firm RCA emphasized in its announcement, it was chosen by Coronet Finance



"because of the short time available before the launch." The European Ariane 3 and Ariane 4 have been designed especially to launch the SES satellites. In the coming months an international call for proposal will be issued for the TV control and transmission stations to be set up in Luxembourg. The Belgian industry, more precisely Bell Telephone in Antwerp, is well placed to obtain this ground stations market. The SES will have European management and its intention is to involve as many European industries as possible in the GDL project. Presumably, the next generation of GDL satellites (to be launched at the beginning of the 90's) will be entrusted to European constructors. Provided the first private teledistribution system per satellite in Europe, operated from Luxembourg, can keep its promises.

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UNITED KINGDOM

BRIEFS

RELAUNCH OF BRITISH DBS PROJECT--London--The British satellite television project is on the verge of restarting in England, indicated the Interior Ministry in London on 18 July. But informed circles believe that it will probably use an American satellite, following the failure of an all-British project in June. Leon Brittan, minister of the interior, must soon report to the House of Commons the discontinuation, one month ago, of the direct broadcast satellite (DBS) project supported by a consortium of 21 British companies. The "21-Club" had placed the responsibility for this failure on the government, which refused to disburse one penny on the project, and which insisted that the consortium select a British satellite (built by Unisat), despite its astronomical cost of 500 billion pounds (\$700 million). The British company Britsat is still proposing the use of direct broadcast satellite manufactured in the United States by RCA, and assures that the bill would be less than one-half the price asked by Unisat. This high power satellite would be launched in the next few years, and would allow European households equipped with a small parabolic antenna to receive up to five additional television programs broadcast in Great-Britain. [Text] [Paris AFP SCIENCES in French 25 Jul 85 p 22] 11,023

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